D4.3 Implementation and evaluation plan of Cycle 2 pilots

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TENCompetence

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D4.3 Implementation and evaluation plan of Cycle 2 pilots

(Report containing internal deliverable outcomes ID4.3, ID4.6, ID4.8 and ID4.11**)**

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Building the European Network
For Lifelong Competence Development

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Building The European Network for Lifelong Competence Development

Project Deliverable Report

D4.3 - Implementation and evaluation plan of Cycle 2 pilots

Report containing internal deliverable outcomes ID4.3, ID4.6, ID4.8 and ID4.11

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Abstract (for dissemination)	This document reports on the implementation and evaluation plan of the five TENCompetence pilots that will be carried out in Cycle 2: “Water Management”, “Agora”, “ICT Teacher Training”, “Special Education” and “Digital Cinema”. The pilots will be using the new version Personal Competence Manager as well as a combination of several tools implemented in the project.
Keywords List	Testing and Validation, Pilots, Cycle 2, usability, Competence Development Programmes, Integrated Infrastructure

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Executive summary

The TENCompetence evaluation work is organized in three cycles. The role of the pilots in Cycle 1 was to take the initial TENCompetence common framework and use it in preliminary pilots which focussed on 'proof of concept'. This ‘proof of concept’ was achieved with two pilots devoted to two different subject areas: Digital Cinema and Training of professional teachers in the use of Information and Communication Technologies (ICT). Cycle 2 has the character of 'usability pilots', these pilots are expected to validate that the solutions developed to make the TENCompetence concept a reality are usable, that is to say that they provide effective solutions to real problems in authentic contexts. Finally, the plans towards Cycle 3 involve also external parties (associate partners) in the pilots, which will then represent ‘business models demonstrators’. This deliverable reports on the implementation and evaluation plans of Cycle 2 pilots.

Cycle 2 pilots are planned to be significant by implementing a combination of usage profiles and tooling (depending on the context of each pilot and the tooling available at the moment of implementing it), and by demonstrating the flexible deployment of the TENCompetence infrastructure in various settings (from home to the workplace) and with different user groups (e.g., individuals with a need to develop competences to perform their job better, people who have an intrinsic motivation to learn, groups who want to share knowledge, organizations that produce knowledge or have to train personnel). Five different pilots are planned for Cycle 2:

- **Water management: FMM pilot**
  The overall goal of the ‘Flood Modelling for Management’ (FMM) competence development program is to teach water professionals in the use of catchment, river basin and urban flooding models. The FMM pilot will consist mainly of individual people with a need of developing competences to perform their job better, for whom receiving some kind of formal certificates is crucial in their career perspective, and for whom the choice of doing an on-line course is a personal choice. The pilot will be run from UNESCO-IHE in Delft, the Netherlands. The tutors will be in Delft, participants mainly from African/Nilotic countries. The participants (expected 20-25 Young to Mid career Water Professionals) will be studying from home or work locations. The tooling (if ready) planned to be used in this pilot are: the Personal Competence Manager (PCM), the Personal Development Planner (PDP), and LearnWeb2.0. The pilot activity is planned to start in September 2008.

- **Agora pilot**
  The general goal of the pilot is to test the TENCompetence infrastructure and pedagogical model(s) in its ability to support competence development and lifelong learning of adults in languages and ICT. This is one of the main areas of non-formal education on which Agora association is focused. The learners participating in Agora are typically organized in groups who want to share knowledge, points of view to develop their insights and competencies in the field. The individual people involved are mainly characterized by the fact that they want to develop competences due to intrinsic motivation to learn. They will not achieve a formal degree. The more than 100 expected participants will be able to use the TENCompetence infrastructure in the Agora computer room or from home. This pilot plans to use, if

the tools are ready, the PCM, ReCourse, PDP, LearnWeb 2.0, and probably the Overview tool. The pilot activity is planned to start in September 2008.

- **ICT Teacher Training**
  This pilot tries to show how the TENCompetence framework and approach can be used for the implementation of the innovative and complex training methodology, developed in the framework of the Leonardo project "The Innovative Teacher project (I*Teach)". The main target groups are professional teacher trainers and teachers (more than 300) who are willing to apply ICT in their subject domains. They participate in the training both individually or as a group of teachers from a specific school. They want to achieve new competencies, to receive some validation of the new qualification, and to form new communities of teachers willing to share knowledge resources, teaching plans and to share experiences in their own field. This training is in close cooperation with the Bulgarian Ministry of Education – ICT directorate, which not only supports the training, but also is an associate partner of the TENCompetence project. The setting of the pilot includes face to face and distance activities, some of them also carried out in the professional teachers' workplace. Since this pilot has already started (June 2008) and other TENCompetence tooling is not available at this time (except from ReCourse and SLeD which may be incorporated in the pilot), the tool used is the new version of the PCM.

- **Special education**
  Special Education Bulgaria (SEB) pilot is designed to create a sustainable nation-wide community of practice (CoP) for special education competence development in Bulgaria via the Internet. It addresses Internet-based competence development and lifelong learning for (15) special educators in Bulgaria. SEB's central purpose is to connect extant geographically-dispersed special education communities in Bulgaria. Teachers and educators, willing to be trained via theses courses, are people with a need to develop new competences related to the special education field, in order to perform their job better, or to change their current job. For this to happen, they need to be able to solve some types of specific problems or to learn to cope with specific situations, related to special education. Since this pilot has already started (June 2008) and other tooling significant for the pilot is not available yet, this pilot is using the new version of the PCM.

- **Digital Cinema**
  This pilot is a revised extended version of the Digital Cinema pilot carried out in Cycle 1. Its main goal is to test the TENCompetence infrastructure and pedagogical models in their ability to support competence development of busy professionals in the area of Digital Cinema and 3D. The competences supported in this pilot are tool-oriented. In Cycle 1 the focus was on the Brainstorm software which enables the creation of Virtual Sets. In Cycle 2 competences related to effectively using the new NINOS infrastructure (under development in the SALERO project) for automatic audiovisual production will be incorporated in the pilot. The aim is to increase the number of potentially interested participants, having in mind that the domain is quite specific and the target users are busy professionals. They are typically individuals with a need to develop competences to perform their job better. The pilot is open to any national or international person interested in the topic of the pilot. Participants could develop their competences through the pilot infrastructure from different

settings: their workplaces, their homes, training sessions arranged by the organization (SALERO project) producing the tools. The pilot activity will be starting in September 2008 and plans to incorporate the PCM and ReCourse (for the experts defining the competence profiles and units of learning), the PDP, TENTube or LearnWeb 2.0 and SLeD (for the targeted lifelong learners).

Overall, the second Cycle of implementing and evaluating the TENCompetence infrastructure through pilot implementations has four main objectives:

- Develop a better understanding of the effects and relations of competence profiles, learning processes, and the tools that are involved in competence development.
- Understand the organization of competences within learning networks and communities of learners.
- Develop a clearer picture on the usage of tools for competence centered learning, alternatives that are used by the learners, as well as the connections between the tools.
- Develop a better understanding of the organizational implications of competence centered learning for training institutions, and content providers.

Therefore, the two main research questions formulated for the cycle-2 pilots are:

- How do people understand, define, and use competences as part of their learning experiences?
- How do the tools provided by the TENCompetence Infrastructure interlink and how are the relations of the tools experienced by the users in different settings?

To reach evaluation results that provide answers to these research questions, the methods planned in Cycle 2 include qualitative and quantitative approaches: analysis of contents of the pilots' learning environments, log file analysis, semi-structured interviews with providers, pre-test, intermediate and post-test questionnaires.

The training needs identified for Cycle 2 pilots comprise quick starting guides to the tools applied in each pilot, videos illustrating their use and specific training sessions for competence and content providers (e.g., in the Agora pilot). These requirements have been communicated to WP9 which is coordinating with the WPs in charge of developing the tools so that the training materials are available when needed. These efforts will continue in the preparation for Cycle 3 business demonstrators. WP4 is elaborating a pilot implementation methodology with a description of the tasks and procedures needed to implement a TENCompetence pilot so that it can be used by associate partners. The methodology will be complemented with specific training materials whose development is coordinated by WP9. WP10 will also collaborate in the methodology by providing input related to guidance in the implementation of viable business models around the solutions developed in the project. WP4 is also coordinating with WP10 to secure a proper integration of these associate partners in the TENCompetence organizational infrastructure. In this way, consortium partners are already contacting potential associate partners, especially SMEs, interested in conducting business demonstrators.

Structure of this report

This report contains several internal deliverable outcomes (ID4.3 –Execution and evaluation plan for cycle 2 pilots-, ID4.6 – evaluation implementation plan for pilots starting in cycle 2 -, ID4.8 – Distribution of cycle 2 pilots information) and is organized as follows.

Section 1 briefly reviews the TENCompetence validation work which is organized in three cycles. After summarizing the conclusions obtained in Cycle 1, it discusses the strategy adopted for Cycle 2 and the perspectives for Cycle 3. The emphasis of the strategy relies on implementing a combination of usage profiles (when possible depending on the context of each pilot and the tooling available at the moment of implementing it), demonstrating the flexible deployment of the TENCompetence technical infrastructure in various settings and with different user groups. The usage profiles and the associated available functionality for Cycle 2 pilots are summarized in **Appendix 1**.

The rest of this document is organized as follows. **Section 2** explains the evaluation plan for Cycle 2 pilots (ID4.6). It details the research questions addressed in these pilots and the methods and instruments that will be used to collect the quantitative and qualitative evaluation data. **Appendix 2** includes the plan for development of evaluation instruments necessary for the evaluation. **Section 3** is divided into five different subsections. Each of them describes each pilot and includes its implementation and deployment plan. Pilot descriptions comprise explanations of the user groups, settings, competence profiles and tooling that characterize each pilot. They also summarize the stage of the preparation phase and provide some indications of the training needs so that they can be communicated to WP9 (ID4.3 and ID4.8). The use scenarios (narratives) corresponding to each pilot are listed in **appendixes from 3 to 7**. Finally, **Section 4** concludes the report.

1. Introduction: TENCompetence Validation, focus on Cycle 2

WP4 is situated in the Integration RTD activities of the TENCompetence project, "*Validation of pilots with the Integrated System*". This section revises the organization of TENCompetence validation work in three Cycles and summarizes the conclusions obtained in Cycle 1. The strategy planned for Cycle 2 and Cycle 3 is also explained.

1.1 TENCompetence validation work

The project activity is organized in three Cycles. Each Cycle entails a specific focus for evaluation.

Cycle 1.

In the first Cycle (inception/elaboration) the available state-of-the-art and the technologies the partners bring into the project were the input for the integration process. All of the tools of the partners complied to open standards, but were not integrated and combined into a common framework for competence development. That was accomplished in the first Cycle. The outcome was an open source, interoperable framework using open standards. During the first Cycle, the Aspect RTD activities concentrated on the research and development of new models and technologies that will be integrated in the second Cycle. **The role of the pilots in Cycle 1 was to take this common framework and used it in initial pilots which focused on 'proof of concept'**. The work carried out in the Aspect RTD activities in this Cycle was not validated by the Cycle 1 pilots, and was planned to be evaluated within each work package.

Cycle 2.

In the second Cycle (construction) the evaluation results of the pilots and the output of the first Cycle of Aspect RTD activities will be taken as the input for the integration activities and the infrastructure will be redesigned and extended to accommodate these new results. In this second Cycle the main integrated technology development activities take place to construct the infrastructure. The pilots' programme will be greatly expanded in this Cycle. This second Cycle of pilots has the character of 'usability pilots', and they will **validate that the solutions developed to make the TENCompetence concept a reality are usable, that is to say that they provide effective solutions to real problems in an authentic context**.

Cycle 3.

In the third Cycle (transition) the evaluation results of Cycle 2 pilots and the output of the Aspect RTD activities in Cycle 2 are again taken into account as input for this last Cycle. **The pilots are now 'business models demonstrators', mainly involving external parties to increase the sustainability**. In this Cycle the project pilots will demonstrate to the wider Life Long Learning community the advantages of adopting the TENCompetence concept and the infrastructure, which will have been developed to support it. Consequently it is intended to leverage and extend the successful pilots,

which have been established in Cycle 2. The role of associate partners is expected to be a key factor in organising pilots in Cycle 3.

1.2 Cycle 1 pilots

After discussing Cycle 1 pilots, we discuss the conclusions and further questions emerging form the results of the pilots.

1.2.1 Summary of Cycle 1 pilots

In Cycle 1, two pilots were carried out (See D4.1, D4.2 or/and Moghnieh et al., 2008b; Schoonenboom et. al., 2008). The ICT Teacher Training pilot was performed in Bulgaria in the autumn of 2007, it lasted for one month and a half with a working load of 100 hours in total, including the assessment. Of the 44 participants, 37 were women and 7 were men. All came from Bulgaria. Most of them were middle-aged people. Most of the participants worked as a teacher (40 people). The objective of the pilot was that participants become acquainted with the I*Teach Methodology, a specific pedagogical approach with an emphasis on collaborative learning. During the first face-to-face starting workshop, the teachers were introduced first with the I*Teach Methodology in large. After that all teachers were invited to form groups (2-3 people in a group), to choose a project (with general objective: applying I*Teach methodology in the process of teaching in their own specialty), to start to work on a project and to have the first feedback. After this workshop teachers were involved in the development of their project; during the final workshop they presented their project to all the other teachers. See D4.1 for more details.

In this pilot, an experiment was set up. All participants could choose their own learning path. All participants could use a forum and chat. Yet, those 19 participants who used the PCM were supported in using this freedom, in that the learning resources could be accessed and managed through the use of the PCM functionalities. The remaining 25 participants used a learning environment, which was comparable, but didn't contain the supporting elements.

Hierarchical organisation of elements - The elements of the PCM are structured hierarchically, which will make it easier for learners to find their way to the learning resources. Competences to be acquired are listed in a competence profile. With each competence, one or more competence development plans can be associated, which are made up of actions that contain one or more learning resources. All competence profiles, competence development plans and actions can be supplied with a description.

Local position of chat, rating and forum - Each element of the PCM has its own forum, chat and rating possibility. For example there is a forum with each competence profile (=set of connected competences), with each competence development plan (=plan for acquiring one specific competence), with each action (= a learning activity) and with each resource (= a web resource used within a specific action).

Marking elements as attained or completed - The PCM allows learners to mark elements as attained or completed. This possibility gives learners an overview of how their learning has progressed.

Element descriptions - All elements can be supplied with a description, allowing developers to put in information on the element.

From the experiment it became clear that more people in the PCM condition passed the competence assessment, and people in the PCM condition felt more in control of their own learning.

First, it must be noted that, when asked, people indicate that the supportive elements are useful. This applies to forum, chat and rating. Only marking as complete is rated in between useful, and not useful nor useless, but this is probably related to the fact that a large majority either didn't see the mark as complete option, or didn't know how to use it. Despite the fact that almost all participants considered these facilities useful, only half of the participants make use of the forum, chat and ratings, and even less make use of the marking as complete option, probably for the reasons mentioned above. The most important reasons for using these facilities was lack of time. Thus, it seems as if many participants view these facilities as useful, but their use takes time, so you use them only if you have got time.

The PCM offers people the possibility to follow their own path through the learning resources. There seems to be a divide between people in their appreciation of this opportunity. On the one hand, there are people who at the beginning already preferred to follow their own path, and there were people who enjoyed following their own path. On the other hand there were people who concluded afterwards that it would have been better to follow the prescribed order instead and there were also people who appreciated the fact that the hierarchical organization of elements provided a natural path to be followed. Interestingly, the proportion of people who prefer to follow their own path after the pilot has risen compared to the situation before the pilot.

There were some usability issues with the use of the facilities, but they were not predominant. There were almost no people who didn't know how to use the forum, but there were slightly more who didn't know how to use the chat. Perhaps this is related to the fact that the chat has no separate tab, but a chat can only be started by clicking on a participant who is online. It might be that the group chat is difficult to use: in the Moodle condition more people made use of the group chat than individual chat, and for the PCM this ration is reversed. There are clearly usability issues with the marking as complete option: a large majority either didn't know it was available or didn't know how to use it. There is one problem with the PCM forums: almost half of the people found it harder to find discussions as separate forums were attached to individual elements. Related to this, there were more people who had a preference for one forum than for separate forums for each element.

In the Digital Cinema (DC) pilot 120 hours of courseware were developed to instruct learners on how virtual sets can be created, directed, and produced with Brainstorm's 3D-Max Studio. A total of 98 persons were inscribed in the course (send an e-mail of interest to ask for an account in the learning system, etc.) They were distributed in two groups: control condition using Moodle and experimental condition using the PCM. 62 participants completed the pre-test and 34 asked for the license needed to use the Brainstorm software. The final number of persons actually registered in the systems was 15 in the PCM and 20 in Moodle.

None of those who enrolled or subscribed finished the course or completed the final competence assessment. The number of drop-outs seems to be higher for the PCM condition than for the Moodle condition (note also that the two PCM drop-outs both didn't spent time on the course). The main reason for dropping out seems not to be under our control, namely lack of time. Yet, the problems with the Brainstorm software need to be considered. It is clear that drop-out is not because of lack of interest, as a

majority of the participants would follow the course again if they would have time. This is in line with the group who filled in the final questionnaire: a majority of them wishes to develop this competence further.

The functionalities for collaboration (chat and forum) were hardly used. No conclusions can be drawn on the use of the specific PCM functionalities. It would be interesting to further analyze why two people in the Moodle condition felt they had no insight into how their learning progressed. It seems as if 25 hours is a minimum that participants need to work through all resources.

1.2.2 Conclusions from Cycle 1 pilots

The target group of TENCompetence are busy professionals. This comes to the fore in both pilots. In the DC pilot, the most important reason for dropping-out was lack of time. In the ICT Training pilot, some PCM functionalities were seldom used, and lack of time was provided as the main reason. This applies both to functionalities for discussion (forum and chat) and functionalities that help selecting elements and get an overview (ratings, marking as complete).

This has several implications for our further research with the Cycle 2 pilots. First, the stronger feeling of being in control in the PCM group in the ICT Training pilot plus the higher number of people that passed the competence assessment in this group, might be entirely related to the hierarchical organization of resources into competences that the PCM provides. On the one hand, this makes it important to keep using our existing quantitative approach and questionnaires, to see whether these results are obtained in subsequent pilots as well. We may even set up different experiments, in which a PCM environment that makes use of the hierarchical organization of resources is compared to a PCM environment that does not make use of the hierarchical organization. It also becomes important to include the new functionalities of the May release of the PCM into the questionnaire, to see which of them are used often and which are used scarcely.

Second, given the large amount of drop-outs that occurred in one of the pilots, and might occur again in other pilots, the pilot evaluation might focus less on whether people completed the competence development plan, but rather focus on what they have learned from the resources used through the TENCompetence infrastructure and models with which they did work, and how does this influence their competence level and future plans. This requires a more qualitative approach. The aim of this research would be to adapt the use of the PCM more to busy professionals with very limited time.

1.3 Strategy for Cycle 2 pilots

The strategy for Cycle 2 pilots takes as the input the conclusions of Cycle 1 pilots and the output of the first Cycle of Aspect RTD activities as well as the general perspective envisaged for Cycle 3.

The focus and strategy for Cycle 2 consider the following issues:

- Explicitly consider and analyze the role of different user groups (individuals, groups and organizations) and settings types (including informal lifelong learning scenarios such as the workplace). The addition of the Agora pilot represents a challenge for the project since the majority of its target participants are not highly educated users. See section 1.4.

- The evaluation methodologies is also revised considering the conclusions from Cycle 1 and including a qualitative perspective which will allow us to understand the effects of TENCompetence in the context of the realities of each pilot.
- Providing active feedback to the rest of the project (mainly WP2) by means of change requests and use cases. That is the reason why Appendices from 3 to 8 list the use cases associated to each pilot. They differentiate the ideal formulation of the real world use scenarios vs. real use cases (according to TENC infrastructure available for Cycle 2 implementation). The use cases are related to the usage profiles defined by WP2.
- Cycle 2 pilots will take up and evaluate results of WPs 5-8 appropriately in the real world usage scenarios provided by the pilots. This will be done when possible considering the implementation plan of the pilots and the availability of the new TENCompetence tools. To enable an integrated view of the TENCompetence tooling and even the use of external tools, Cycle 2 pilots will employ Graphical User Interface (GUI) containers as specified in DIP3 (see Figure 1).

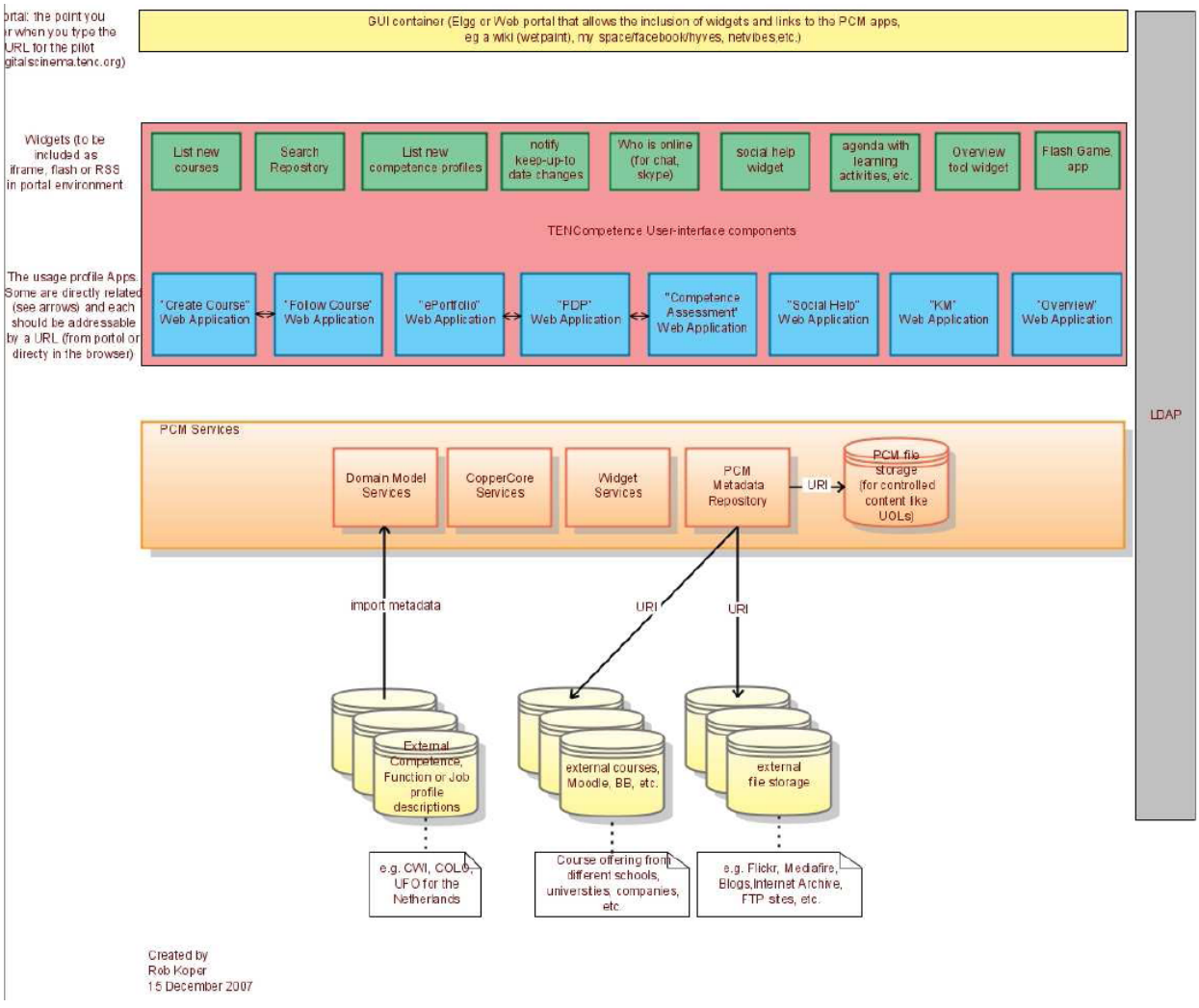


Figure 1. TENCompetence architecture (Figure 3 of the TENCompetence Detailed Implementation Plan month 25-42)

- Efforts towards defining more business relevant trial scenarios with respect to adapting the application solution to real world domains in collaboration with commercial/industrial users from the network of associated partners. In DIP 3 (demonstration activities) the strategy towards Cycle 3 is detailed. The larger consortium partners will prepare and implement business demonstrators which may be executed at Associate Partner organizations, or within the parent organization. In the latter case this should be another unit than the one participating in TENCompetence itself. Preferably however, business demonstrators are executed at Associate Partners, preferably including SMEs as service providers. For this the SME tender funds can be used. To assist this process, WP4 is developing a pilot implementation methodology. The methodology includes the description of the tasks and procedures needed to implement a TENCompetence pilot: from describing the training in terms of competences and selecting the usage profiles more useful for the pilot to the tooling integration and the evaluation of the pilot success.
- WP4 is coordinated with WP9 to secure relevant training in Cycle 2 pilots (Krekels et al., 2008a) and for the Associate Partners interested in business demonstrators. The link is high also with WP10 to and assist (associate) partners in implementing viable business models around the solutions developed by the TENCompetence project (Krekels et al., 2008b). The coordination with WP10 also aims to secure proper embedding of these Associate Partners in the TENCompetence organizational infrastructure.

The pilots planned for Cycle 2 were introduced in the executive summary of this document and described in detail in section 2. They represent five different areas and are entitled “Water Management”, “Agora”, “ICT Teacher Training” (continuation of Cycle 1), “Special Education Bulgaria” and “Digital Cinema” (continuation of Cycle 1). WP4 have adjourned the launching of the Health Care pilot, because the work with Hospital Clínic has progressed more slowly than expected. A pre-pilot phase would be needed (where new systems for diagnosis based on clinical guides would be tested at a small scale), and the pilot might not be as large as it would be desired and the development would be rather slow unless extra external funding is obtained. We have decided to focus our work in developing further the Digital Cinema activity, and the support towards the new Agora pilot.

One of the issues considered in the strategy for Cycle 2 is to explicitly consider and analyze the role of different user groups so that they demonstrated the possible deployment of the TENCompetence technical infrastructure in various settings. Which are the different user groups is the focus of the next section.

1.4 User groups

The TENCompetence infrastructure is intended to be useful for any person, group or organisation that has a need to develop some competencies in any field. The typical users of TENCompetence will be the following people, groups and organisations:

Individual people

- People with a need to develop some general or specific competencies to perform their job better, to solve some types of problems or to learn to cope with specific situations. Also those with a need to improve their career, or a desire to change jobs.
- People who want to share knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge.
- People who need a formal degree, diploma or certificate at any time in their life.
- People who want to develop competencies due to the intrinsic motivation to learn something in a certain area. This includes people who want to develop competencies to improve their quality of life (hobbies, family life, social environment, etc.).

Groups or Teams

- Groups who have to solve complex problems and tasks or have to cope with difficult situations in which group collaboration will increase the chance of successful performance.
- Groups who want to support new/novice members in their teams.
- Groups who want to share knowledge, skills and points of view to develop their insights and competencies in the field (e.g. research teams).
- Groups in companies who want to (or must) develop competencies in order to perform better.

Organisations

- Organisations that want to distribute and manage new and expert knowledge within the organisation.
- Organisations that have to train personnel to learn specific (new, complex or changing) job requirements.
- Organisations that produce knowledge, and want to manage the management and dissemination of knowledge.
- Organisations that want to develop the competencies of groups/teams/departments within the organisation to cope with a new situation, e.g., new product, new competitors, new market challenges.

The user groups involved in Cycle 2 pilots are summarized in Table 1. The specific characteristics of each pilot target user group is detailed in section 2.

The rest of this document is structured as indicated in the introductory section titled “the structure of this report”.

Table 1. User groups involved in Cycle 2 TENCompetence pilots

	TENCompetence USER GROUPS											
	Individual people				*Groups or Teams*				*Organisations*			
PILOTS	People with a need to develop competencies to **perform their job better** (or change job), to solve some types of problems or to learn to cope with specific situations.	People who want to **share** knowledge, skills, perspectives and views with others, e.g. in order to develop new knowledge.	People who need a **formal degree**, **diploma** or certificate at any time in their life.	People who want to develop competencies due to the **intrinsic motivation** to learn (including those competences to improve quality of life).	Groups who have to solve complex problems and tasks or have to **cope with difficult situations** in which group **collaboration** will increase the chance of successful performance.	Groups who want to **support new/novice members** in their teams.	Groups who want to **share** knowledge, skills and points of view to develop their insights and competencies in the field (e.g. research teams).	Groups in **companies** who want to (or must) develop competencies in order to **perform better**.	Organisations that want to distribute and **manage new and expert knowledge** within the organisation.	Organisations that have to **train personnel** to learn specific (new, complex or changing) job requirements.	Organisations that **produce knowledge**, and want to manage the explicitation, management and dissemination of knowledge.	Organisations that want to develop the competencies of groups/ teams/ departments within the organisation to **cope with a new situation**, e.g., new product.
DC	**X**										**Brainstorm company, Salero project**	
ICT	**X**	**X**	**X**		**X**	**X**	**X**			**X (Sofia University)**		**X (Sofia University)**
Water management: FMM Pilot	**X**		**X**	**X**	**x**					**X**	**X**	
Water management: DSS-Pilot	**X**		**X**	**X**	**X**	**X**	**X**					
Agora	**X (less than in other pilots)**	**X**		**X**			**X**			**X**	**X**	
Special Education	**X**			**X**	**X**		**X**			**X**		**X**

2. Evaluation plan for Cycle 2 pilots

The pilots conducted in Cycle 1 of the project mainly served as proof of concept. The results show that a context centered approach to learning is beneficial to the learners. From the experiences of the pilots conducted in Cycle 1 we also learn that more experiences about didactical, social, and organizational conditions have to be acquired in order to improve effectiveness and efficiency of the approach. The shift from a course or a group perspective on learning to a focus on competences was a challenge, which required fundamental rethinking of the curricular and educational structures in the mostly formal context in which the pilots were conducted.

The second Cycle of implementing and evaluating the TENCompetence infrastructure through pilot implementations has four main objectives, as advanced in the executive summary of this report:

- Develop a better understanding of the effects and relations of competence profiles, learning processes, and the tools that are involved in competence development.
- Understand the organization of competences within learning networks and communities of learners.
- Develop a clearer picture on the usage of tools for competence centered learning, alternatives that are used by the learners, as well as the connections between the tools.
- Develop a better understanding of the organizational implications of competence centered learning for training institutions, and content providers.

While continuing the pilots of the first Cycle and expanding the activities to new fields in the second Cycle of TENCompetence, we identified two areas for further evaluation. The first area for evaluation is grounded in around the educational aspects of learning and it is related to the results and the experiences of the first Cycle of pilot implementations (see section 1.2 and D4.2). The second area for evaluation is focusing on the integration and the interplay of the different tools and frameworks in the pilots. This second area is a consequence of the development of the tools and services that have been developed since the first Cycle.

2.1 Research questions

From the project development in the first Cycle two important research questions become relevant to the project. The two research questions address both research areas that have been identified, and are as follows:

- How do people understand, define, and use competences as part of their learning experiences?
- How do the tools provided by the TENCompetence Infrastructure interlink and how are the relations of the tools experienced by the users in different settings?

The first research question is based on the results of the evaluation of the first pilot implementation Cycle. In the first Cycle it became clear that the participants who used the PCM were more likely to pass a competence assessment and felt more in charge of their own learning process. Despite this success, in the ICT teacher training pilot many participants using the PCM reported that they did not use many of its functions, although they recognized them as generally useful. This is particularly the case for

communication and collaboration tools, as the Digital Cinema pilot showed, in which these tools were not used at all by the participants.

From this first evaluation it is concluded that the participants' impression of control over their own learning process is related to the structuring effect of the competence profiles on knowledge resources as they are offered by the PCM. Due to the limited use of tools for social interaction among the users of the PCM in the ICT Teacher Training pilot and in the Digital Cinema pilot, we need to develop better knowledge about how *learners* understand and use *pre-defined* competence descriptions and competence profiles. Given the results of the first pilots it was possible to successfully relate knowledge resources to competences, whereas this was not achieved for social interactions. Therefore, it is necessary to analyze *how social interactions among learners can be meaningfully connected to competences and competence profiles*.

Additionally to the learners' view on competences, competence profiles, and competence development plans, the second Cycle of pilot implementations adds the organizational perspective of training providers and learning communities. Therefore, it is not only necessary to understand how people handle pre-defined competence descriptions and competence profiles, but also to understand how people *define* and *share* competences, competence profiles and competence development plans in different settings. The pilots of the second Cycle address this problem by analyzing how trainers of organizational training providers and peer learners describe and define competences, competence profiles, and competence development plans. This problem is related to bridging formal and non-formal learning as it requires mapping and relating competences to comparable levels.

The second question for research is related to the usability and to the architecture of the TENCompetence Infrastructure. This research question reflects the development process of the underlying system that has been undertaken since the first Cycle of pilots. In the first Cycle the TENCompetence Infrastructure was provided as a tightly integrated system of services with a single point of entry, the PCM. In the meantime a range of services that build upon and extend the initial basic functions have become available. These services are not part of a tightly integrated – almost monolithic – system, but are loosely coupled. Additionally, a set of points of entry have become or will become available during the second Cycle of pilot implementations. Besides of the PCM users can choose to use an entirely web-based interface of the PCM, a lightweight "Personal Development Planner", as well as independent front-ends of the new services. These entry points should be now integrated into existing user interfaces, the so called GUI containers.

This expansion of services and interfaces adds specific demands for the evaluation, which are already addressed by the research question. These demands can be categorized into two main areas. The first area addresses the interplay of the various services and frontends, and how the different tools can be arranged according to the different settings, situational needs, and learning objectives. The second area addresses the usability of the infrastructure for the learning process in terms of offering meaningful interconnected learning experiences, rather than a set of tools that are more or less independent from each other. Compared to the first Cycle, where two completely independent systems were compared, the second Cycle deals with a *rich set of interdependent components* from GUI containers to TENCompetence services. Another

difference between the Cycles is that in the first Cycle the pilots used the same systems providing the same functions to the learners, some pilots of the second Cycle will offer *different arrangements* of GUI containers, TENCompetence services, and external tools to the participants. It is therefore required to analyze approaches of arranging different components as well as how learners experience these arrangements. This evaluation is important to the project as it develops insights about *how to create meaningful links between tools and services* on one side *and competences* on the other.

Therefore, the specific research questions for providers and learners are formulated as following:

Providers
How do providers support social interactions related to competence development?
- Which tools do they use for what type of support for social interactions?
- How do they connect tools to competences?
- To what aspect of competence development do they connect which type of support for social interactions?

How do providers formulate competences, competence development plans, actions and resources?
- At what level are competences defined? How many?
- How can the competences they define be classified in the Cheetham and Chivers classification?

What does the change from a content-based perspective to a competence-based perspective entail?
- What impact does the change towards competence-based working have on
  - the training offered
  - the organization of the provider

Learners
How do learners use:
- The competences, competence development plans, actions and resources?
- The support for social interactions related to competence development?

Subquestions with each of these questions:
- Which tools do they use, how often and what for?
- To what extent does the way in which learners use these tools match the intention of the provider?
- How do learners evaluate the usefulness of the tools?

Tools in the May release of the TENCompetence infrastructure

The May release of the TENCompetence infrastructure will contain several new tools (**see Appendix 1**). Below is a first exploration of how the use of these tools might affect access to knowledge resources and collaboration.

Personal Competence Manager (PCM) *(Rich client)*
This is basically the PCM as it is now, so we do not expect any changes in the effect on access to knowledge resources and social collaboration.

PDP *(Rich client)*
In the PDP a participant can create their own Personal Development Plan. We expect this tool to have the following effect on access to knowledge resources:

- participants can select their own knowledge resources, thus we expect that it heightens the feeling of control. The PDP is not expected to have an effect on collaboration except from its blogging functionality.

ReCourse *(Web client)*
The ReCourse editor is a graphical learning design editor. As this is related to creating resources, this editor will not influence access to learning resources or collaboration.

SLeD+APIS+Widget server *(Web client)*
Some of the widgets implemented provide communication functionalities such the forum and the chat.

LearnWeb 2.0 *(Web client)*
The LearnWebe2.0 provides clients and services for finding, publishing and rating resources. The implementation of the LearnWare2.0 would mean an improvement to the current PCM, in which searching directly for resources is not possible. The LearnWare2.0 might be of help e.g. to people creating their own PDP. As such, it affects access to knowledge resources, but it will not affect communication.

Overview tool *(Rich client)*
At this moment, the Overview tool will be ready not in May, but in June, thus the question is whether it will be possible to use it in the pilots. The Overview tool enables participant to explore resources, people and competence profiles. Thus it may affect access to resources and collaboration.

2.2 Methods

The methods to be used in the evaluation (and its relation to the research questions) are:

Analysis of contents of the pilot's learning environment
How do providers support social interactions related to competence development?

- Which tools do they use for what type of support for social interactions?
- How do they connect tools to competences?
- To what aspect of competence development do they connect which type of support for social interactions?

How do providers formulate competences, competence development plans, actions and resources?

- At what level are competences defined? How many?
- How can the competences they define be classified in the Cheetham and Chivers classification?

Log file analysis
How do learners use:
- The competences, competence development plans, actions and resources?
- The support for social interactions related to competence development?

Subquestions with each of these questions:
- Which tools do they use, how often and what for?

Semi-structured interviews
Providers
How do providers support social interactions related to competence development?
- Which tools do they use for what type of support for social interactions?
- How do they connect tools to competences?
- To what aspect of competence development do they connect which type of support for social interactions?

What does the change from a content-based perspective to a competence-based perspective entail?
What impact does the change towards competence-based working have on
- the training offered
- the organization of the provider

Pre-test questionnaires
Learners
Profile and background of learners
(Same pre-test than in Cycle 1)

Post-test (and intermediate) questionnaires
Learners
How do learners use:
- The competences, competence development plans, actions and resources?
- The support for social interactions related to competence development?

Subquestions with each of these questions:
- Which tools do they use, how often and what for?
- To what extend does the way in which learners use these tools match the intention of the provider?
- How do learners evaluate the usefulness of the tools?

Extended explanations regarding each type of evaluation method are provided in D4.1. The plan for developments of evaluation instruments is included in Appendix 2.

3. Implementation plan for Cycle 2 pilots

This section details the implementation plans for Cycle 2 pilots. It is divided into five different subsections. Each of them describes each pilot and includes its implementation and deployment plan. Pilot descriptions comprise explanations of the user groups, settings, competence profiles and tooling that characterize each pilot. They also summarize the stage of the preparation phase and provide some indications of the training needs so that they can be communicated to WP9. The use scenarios (narratives) corresponding to each pilot are listed in appendixes from 3 to 7.

3.1 Water Management: FMM pilot

3.1.1 Short description, user groups, setting, tooling and aim

Short description
Water resources management has become a field where computer-based techniques are expected to facilitate the complex process of decision making which involves several stakeholders with varied interests and various socioeconomic objectives, of the natural resources. The decision-making related to water resource management is a process that requires water resources engineering expertise combined with suitable use of hydro-informatics models.

With growing scarcity and quality deterioration of water resources, in many developing countries, in addition to the current trends of increasing floods and climate change, the contribution and role of modellers in river basins has increased and become a necessity as well. The users of hydroinformatic tools, and of river basin models in particular, need a substantial experience to develop models which will in the end built organisations capacity to manage and protect water resources in order to optimise their utilization.

The overall goal of the “Flood Modelling for Management” (FMM) competence development program is to teach water professionals that by using catchment, river basin and urban flooding models they can maximize economic and social well-being in an equitable manner without compromising the sustainability of their ecosystem.
FMM will run with a little bit of rigid structure. This is in contrast to the proposed run in 2009 in which learners will have absolute freedom in choosing their learning path. The use of the two different pedagogical models will help in evaluating the added value of the TENCompetence project.

The Pilot project combines several challenges in the field of content development for on-line courses, on-line course delivery, knowledge sharing and network development support, on-line modelling tools, etc.
The online competence development program FMM will be run two times (Cycle 2 in 2008 and Cycle 3 in 2009) using the TENCompetence infrastructure. In the two runs two different pedagogical models will be used. The first run will be teacher-centred whereas the second run will be learner-centred. The competence development program will be offered free of charges in exchange for evaluation activities. Yet a basic entrance level to participate in the program is set. A preference will be given to applicants from

the Nile Basin countries to bring synergy with the activities centred around the pilot component Decision Support Systems (DSS, see 3.1.9).

During the 2008 run of FMM learners will have a fixed learning path for the first 70% (Catchment modelling) of the estimated time they follow FMM. Subsequently, they can choose different learning paths depending upon their background, professional needs, etc. Two different learning paths are envisaged; they are, river- and urban- flood modelling. The situation is described **Figure 2**.

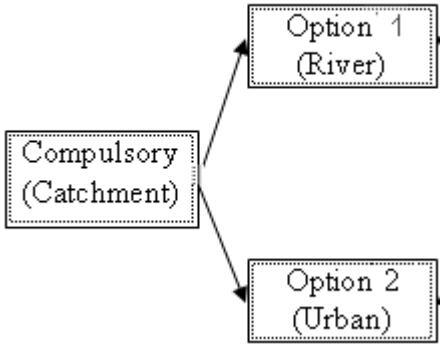


Figure 2. Schema depicting the content structure of Flood Modelling for Management.

User groups
UNESCO-IHE offers – besides its MSc programmes and several kinds of short courses – on-lines course for water professionals in the field. These water professionals can come from the same organisations, can be groups or teams, or individual people, seeking competence development in their professional water management career from an academic institute.

The FMM pilot will (probably) consist of **individual people** with a need to develop competencies to perform their job better, for whom receiving some kind of formal certificate is crucial in their career perspective (in many developmental countries certificates, degrees and diplomas bring improvement in positions and salaries), and for whom the choice of doing an on-line course is a personal choice (e.g. they are not sent by their boss). The user group in the FMM pilot will be young-mid career water professionals, interested in competence development in flood modelling, as well as contributing to a community in flood modelling expertise. Because we have an experienced, adult and geographically spread group of students we want them to bring in and exchange their knowledge and experiences. There can be a big variation within the target group, e.g. with respect to the entrance level. The minimum entrance level is Bachelor in WaterScience or Civil Engineering. The participants are expected to be between 25 - 45 years old.

Within the 3 month on-line course and pilot there are possibilities to treat the course participants as a **group**, who have to cope with a difficult situation (e.g. a certain risk of flood in a given area) in which group collaboration will increase the chance of finding optimal solutions and strategies.

Especially for the participants from the Nile Basin area, the pilot environment may enable them to build up a knowledge base, which can be shared, updated, improved, etc

and used for training purposes by certified course participants. Within this approach physical **organisations** (within or between different Nile Basin countries) are connected via the virtual relationships between professionals within the community of interest. The **community** of flood modelling professionals (certified and non-certified) will become connected to the community of Decision Support for Water management (Pilot 2 in 2009). Actually the Flood modelling community may be seen as a specific group of interest within the DSS community.

Setting
The pilot will be run from UNESCO-IHE in Delft, The Netherlands. A TENCompetence server is installed at UNESCO-IHE. The tutors will be in Delft, participants mainly from African/Nilotic countries. The participants will be studying from home or work locations. Peer learning will be stimulated because of mid-career professional situation. The actual learning will be primarily an individual process, especially during Run 1 in 2008.

The Competence Profile has a fixed Learning Path to begin with and a bit flexible Learning Path during the end. The course is offering two sub- Competence Profiles: River basin Flood Modeller and Urban Flood Modeller. The schedule of learning activities, including assessment: 10 weeks program (14 hours study load/week). Learners study synchronous (not real time, but per week they should be in sync), but some flexibility is built in. Assessment is at the end. Learning materials in the learning activities: Documents, models, videos, audios etc. Studying in sync is seen as important at UNESCO-IHE because it enables the use of E-tivities (discussion based Project Based Learning exercises) where students interact with fellow participants and the teacher. The mid-career professionals bring in a lot of work experience and knowledge that is shared in these E-tivities.

Participants can choose to do self-assessment in addition to compulsory assessment. After completion and assessment the participants will receive a ‘certificate of attendance’ for the module on Flood Modelling for Management conducted by UNESCO-IHE.

Tooling
According to the use narratives of Appendix 3, the tooling that will be used in this pilot are: the **PCM**, the **PDP**, and, if is ready to use, **LearnWeb2.0** (see also Appendix 1 for a short description of the tools).

Roles and number of persons
The following people will be involved in the coming FMM-1 pilot.

• staff installing the software	Carel Keuls, Wim Glas, + WP3
• developer of GUI container linking to TENC tools	Carel Keuls, Wim Glas
• content developer	Ioana Popescu, Andreja Jonoski
• competence provider	Ioana Popescu, Andreja Jonoski
• competence assessment provider	Ioana Popescu, Andreja Jonoski
• community creator	Ioana Popescu, Andreja Jonoski
• staff providing technical support (help-desk)	Wim Glas
• learner	20-25 Young to Mid career Water Professionals
• tutor/teacher/coordinator/mentor/study advisor	Ioana Popescu, Andreja Jonoski, Wim Glas, Carel Keuls
• expert	Prof. Roland Price
• Assessor	Ioana Popescu, Andreja Jonoski
• pilot evaluator	UvA, OUNL

Aim and expectation of the pilot
This first pilot is for UNESCO-IHE quite important, since it confronts us with a new (competence based) approach of education, as well as a new technical infrastructure to support life-long learning, with the potential to be enlarged, extended and implemented for many more educational and life-long learning supporting activities of UNESCO-IHE all over the world.

The aim of the pilot is to evaluate the TENCompetence environment and pedagogical model in its support of improving competences in Flood Modelling and Management for participants.

The project will be working in a non-European environment where the effectiveness of the infrastructure in a non-Western cultural context can be validated. The pilot involves making the link between higher education and Competence Based Learning Networks. Learner results and learner satisfaction are expected to be higher after the learner-centered scenario than after the teacher-centered scenario. We have to see how to deal with the e-tivities where we want all participants to be active in the discussion at the same time.

The use of the two different pedagogical models will help in evaluating the added value of the TENCompetence project.

3.1.2 Context of the pilot
To improve UNESCO-IHE's ambition to provide water education to a wider community through e-learning. UNESCO-IHE has considerable experience and material to validate the TENCompetence objectives.

Within the scope of this component of the water management pilot an online program Flood Modelling for Management (FMM) will be developed and run using the TENCompetence infrastructure and pedagogical models. UNESCO-IHE has its ambition to provide water education to a wider community through e-learning. A major

activity of the pilot will be to convert educational material on FMM suitable to be used in the e-learning environment. The pedagogical model being developed under the TENCompetence project will also be utilized. Once the material is ready the online FMM will be run using the concepts of online course delivery and knowledge communication concepts. The Pilot project combines several challenges in the field of content development for on-line courses, on-line course delivery, knowledge sharing and network development support, on-line modelling tools, etc.

The FMM will be run two times (Cycle 2 in 2008 and Cycle 3 in 2009) using the TC infrastructure. In the two runs two different pedagogical models will be used. The first run will be teacher-centred where the second run will be learner-centred. The competence development program will be offered free of charges but a selection criteria will be applied. A preference will be given to applicants from the Nile Basin countries to bring synergy with the activities centred around the pilot component Decision Support Systems. (See 3.1.9 Future Water Management pilots).

3.1.3 Relevance of TENCompetence for the pilot context

This FMM pilot will explore the conditions and requirements for changing topic driven education towards competence based education, including features of building informal learning communities. This is highly relevant since many (formal) educational providers are topic-driven.

The first run of the FMM pilot will be still teacher-centered where the teacher defines the learning path through the Competence Profile and defines the Competence Development Plan (CDP).for each Competence in the Competence Profile. The second run of the FMM pilot will be changed to student-centered where the students can really make their own Personal Development Plan (PDP) by deciding themselves on the learning path through the Competence Profile and making/changing/choosing their own Competence Development Plan (CDP) for each Competence.

- This FMM pilot will explore the conditions and requirements for changing topic driven education towards competence based education, including features of building informal learning communities. This is highly relevant since many (formal) educational providers are topic-driven.
  While the first run of the FMM pilot will be still teacher-centered, the second run of the FMM pilot will be changed to student-centered where the students can really decide themselves on the learning path.
- The project will be working in a non-European environment where the effectiveness of the infrastructure in a non-Western cultural context can be validated, as well as a different (more self-directing) pedagogical concept.
- The pilot involves making the link between higher education and CDPs. (Competence Development Programmes)

Of the six learner goals described in the Domain Model the following are relevant to this pilot:

- Subscribe and perform action
- Improve Competency level
- Want some support

From the 7 objectives of TENCompetence this pilot will address objectives 1,2,3,4 and 5.

3.1.4 Description of the competence profiles and competences involved

The FMM-on-line course can be characterised as a topic-driven approach. Participants are confronted to a structure of topics, and within each submodule with a more detailed list of topics, that represent the domain, but do not represent the to-be-expected competences and their development, during the course.

Therefore an exercise has been organised to review the course structure and its topics, to work along starting-points from literature on competence development (Cheetham and Chives), and to re-define (to a certain extent) the course into a competence based approach, in which more clarity is shown to participants about expected abilities and capabilities after the course.

The different steps in this exercise have been described here as follows.

Step 1: Reviewing a topic driven course/module and Global Competence design
The TENCompetence concept approach entails – besides the integration of different competence development tools - an understanding and transformation of the content of a topic driven course into a Competence development Based course.

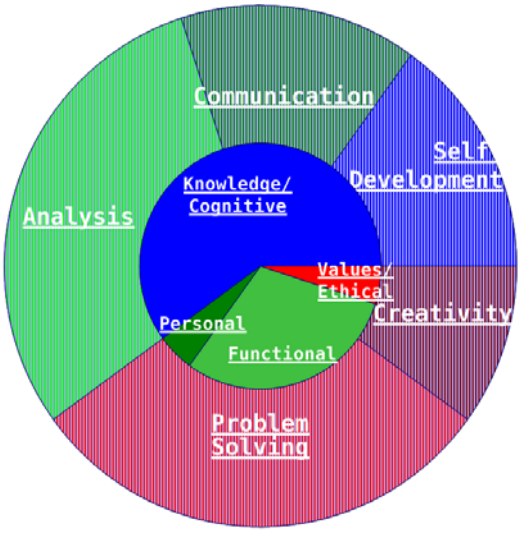
The original Module FMM was based on the following topic structure:
The module consists of four related, and sequential course topics:
1. Flood management and information technology
2. Flood processes
3. Flood modelling: methods and techniques
4. Flood modelling: advanced features

The learning path is teacher centred. Participants have to follow the topic and sequence of the sub parts.

In this phase the course and its content were de-constructed according to the core competence model elements of Cheetham and Chivers (see Figure 3).

With the help of this model the course module was approached from a competence based view, also to identify possibilities for student centered learning path design (FMM-2).

As a result the FMM-1 course will be setup according to Figure 3, and FMM-2 will be setup according to Figure 4.



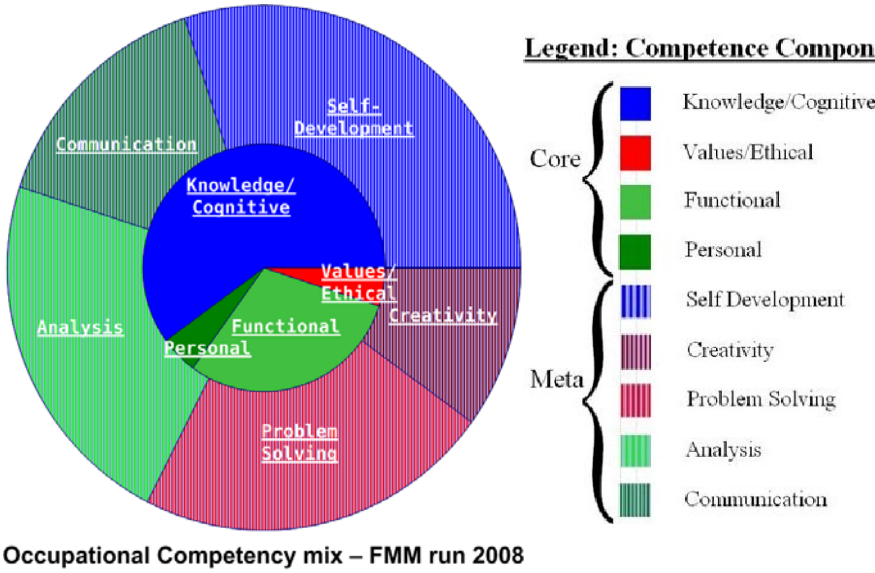


Figure 3. FMM-1 design **Figure 4. FMM-2 design**

Then a subdivision was made in subcomponents according to Cheetham and Chivers Competence model (Figure 5) is made (Cheetham & Chivers, 1996; Cheetham & Chivers, 1998).

After discussion with the experts it became clear that the course will support two competence profiles: River basin Flood Modeller and Urban Flood Modeller. These are actual professional working fields. As a generic basis though Modelling knowledge of a catchment is a pre-requisite. Therefore competence development in Catchment Modelling is compulsory and precedes the two focussed competence profiles.

As a next step all course components were categorised into the sub-components of the Occupational Mix Model:

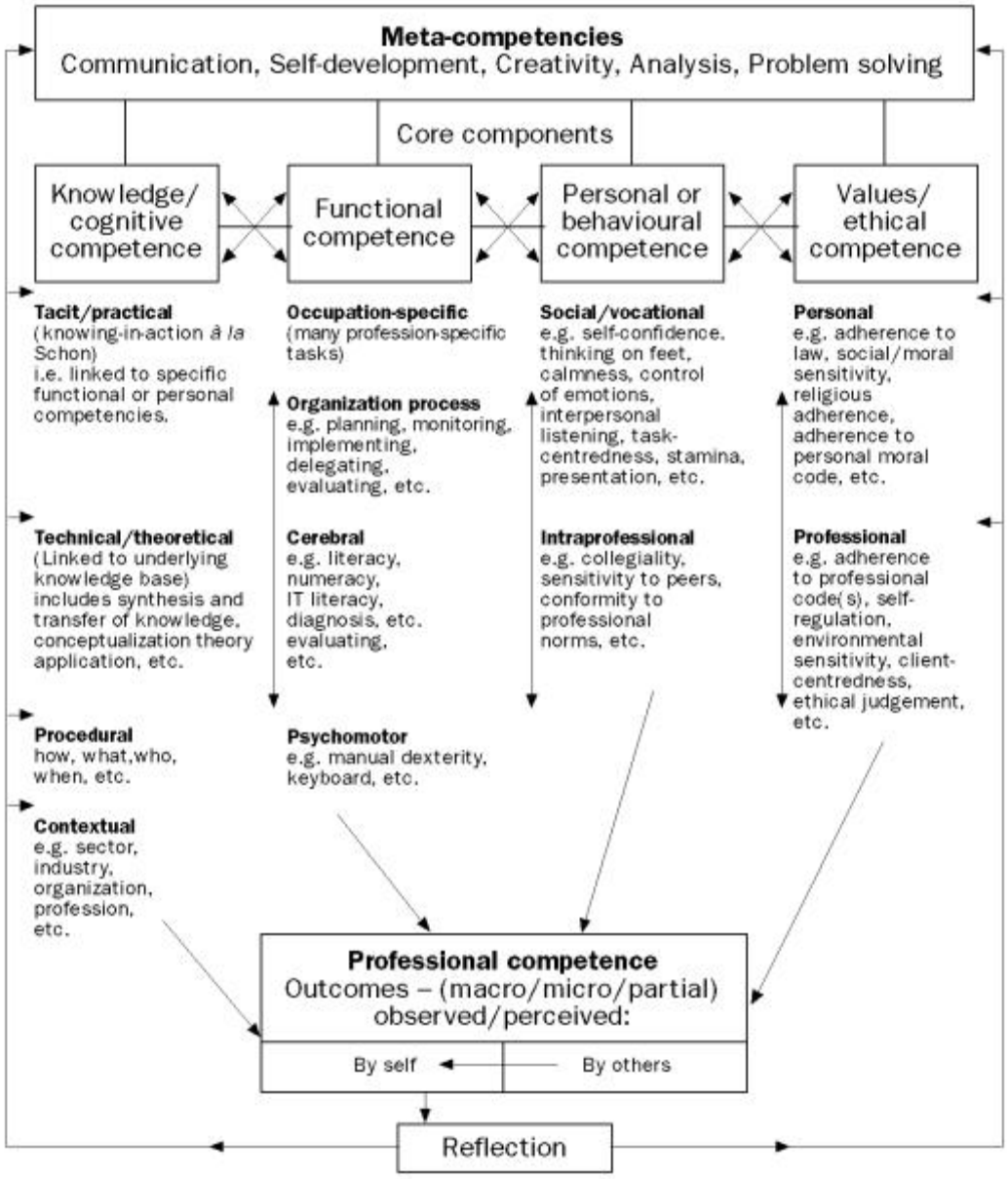


Figure 5. The Cheetham and Chivers competence model (Cheetham & Chivers, 1998)

In summary, the global competence design is as follows:
Run 1 2008
Goal: is to teach Managers about Flood Modelling where the students really learn of knowledge and skills (so Knowledge and Functional Competency levels are high). The FMM Pilot 2008 will be given in a rather Teacher-centered way. The Learning Path is set out by the teacher.

Run 2 2009
The FMM Pilot 2009 will be given in a rather Student-Centered way. The Learning Path is set out by the student because we want to increase the Self-Development Competency level as can be seen in the figures.

Step 2: Redefinition of expert-defined topics into competence elements of Competence Model

With regard to the Cheetham and Chivers Occupational Competency Mix, all course elements and competence requirements were re-organised into the Model

FMM constituents for the proposed model

Note – Each constituent material has a letter in front indicating if it is Catchment (C)/ Compulsory (C), river (R) or urban (U) related, or both (RU) for river and urban. There is also the General (G) indication. To fulfil one competence all the C components must be selected and at choice R or U components. The G components are advisable to be selected, however some of them, depending on student choice can be skipped.
SLU stands for study load units and represents the estimation on the number of hours needed to study a particular topic.

1. **Knowledge / Cognitive competence**
    a. Tacit/Practical (knowing in action)
        i. G-Identification of a problem to be solved: Choose a river basin, analyse it and identify the problems
        ii. G-Find minimum two solutions to the identified problem in 1-a-i
        iii. G- Analyse the best economical solution from 1-a-ii
        iv. G- Predict which is the best engineering solution from 1-a-ii and justify why
        v. G- Identify possible future problems in the case defined at 1-a-i
    b. Technical/ theoretical (linked to underlying knowledge base)
        i. G- Introduction to the course – movie file by Roland + lecture note
        ii. G – Flood management and information technology
            1.1 Floods and flood management (6SLU)
            1.2 Hydroinformatics for flood management (6 SLU)
            1.3 Ecological issues in flood management (6 SLU)
        iii. Flood processes
            2.1 C-Meteorological inputs (6 SLU)
            2.2 C- Rainfall-runoff processes (6 SLU)
            2.3 RU-Free-surface flow (8 SLU)
            2.4 U-Flooding in urban areas (6 SLU)
        iv. Flood modelling methods and techniques
            3.1 C-Rainfall-runoff modelling (8 SLU)
            3.2 C- Catchment modelling (6 SLU)
            3.3 C-Hydrological modelling (with HEC-HMS) (16 SLU)
            3.4 R-Flood routing (10 SLU)
            3.5 R-Hydrodynamic modelling (with MIKE11) (12 SLU)
            3.6 U-Urban flood management (10 SLU)
            3.7 U-Urban flood modelling (with MOUSE) (12 SLU)
        v. C-Flood modelling- advanced features
            4.1 Data-driven modelling (14 SLU)
            4.2 Flood modelling and DSS (12 SLU)
            4.2 Uncertainty in flood modelling (12)
            4.4 Exercise on data-driven modelling for flood management

(12 SLU)
4.5 Flood forecasting and warning(12 SLU)

c. Procedural (how, what, who, when)
    i. G-Modelling protocols
    ii. G- Best practices for flood management (??)
d. Contextual (sector, industry, organisation, profession)
    i. NONE (FOR NOW)

2. Functional Competence

a. Occupation –specific (range of occupation specific tasks)
    i. CRU- Problem position and analysis
    ii. C - Data analysis
    iii. C - Model selection (HEC-HMS, HEC-RAS, MOUSE, SWAT)
    iv. CRU - Model building- step by step
    v. CRU - Running simulations
b. Organisation process (planning, monitoring, implementing, delegating, evaluating)
    i. G- Calibrate, validate the model run in 2-a-iv
    ii. G- Report/Interpret the result of the model
    iii. G- Field work, where possible (??)
c. Cerebral (literacy, numeracy, IT literacy, diagnosis)
    i. G- Write an article for a conference on a chosen topic
    ii. G- Write an article for a journal
    iii. G- Write an essay on a given topic
    iv. G- Assess existing resources on the internet, at the library, in the news
    v. G- Create a selected list of own resources, from those identified in 2-c-iv, using LearnWeb or Amazon
    vi. G- use a unit converter
d. Psychomotor (manual dexterity, keyboard)
    i. NONE FOR THE MOMENT

3. Personal behavioural competence

a. Social/ Vocational (self-confidence, thinking on feet, calmness, control of emotions, interpersonal, listening, task-centeredness, presentation)
    i. G – Public presentation (article presentation to a conference or a lecture, based on the essay from point 2-c-i, or 2-c-ii, or 2-c-iii)
    ii. G- Attending a HI or IAHR conference or seminar (for example in 2009 there are both these conferences)
b. Intraprofesional (collegiality, sensitivity to peers, conformity to professional norms)
    i. CRU - Groupwork
    ii. CRU- Opening a discussion on the forum
    iii. CRU- Answering a question of a colleague on the forum
    iv. CRU-Share the list created in 2-d-i, with a group of colleagues

4. Values/ Ethical competence

a. Personal (adherence to law, social/ moral sensitivity, adherence to personal moral/ religious codes)
    i. NONE FOR THE MOMENT

b. Professional (adherence to professional codes, self regulation, environmental sensitivity, client centeredness, ethical judgement)
    i. C- Water resources sharing
    ii. C- Water related problems
    iii. G-Conflict resolution
    iv. G- Transboundary issues
    v. G- Water law, local and international

Step 3: To develop a competence based learning plan in PCM
The goal is to come to the following re-structuring and competence development:
Community: Flood modelling for management

Competence profile(s)
The Competence Profile is the cluster of abilities students should have when finishing the FMM course. The descriptions of the Competences should be very 'understandable' for them because they have to work with them and will have to do self-assessments on them.

Basic/compulsory: Catchment modeller
Specialised: River basin modeller, Urban modeller

Competences: (still under discussion**)**
- The ability to identify the cause of a flood
- The ability to identify the type of a flood
- The ability to simulate a type of flood
- The ability to interpret and evaluate the impacts of a flood
- The ability to prepare and advise/communicate on possible flood prevention and mitigation actions, including technical and ethical considerations.

Each of these Competences can have one Competence Development Plans (CDP) for the first run. In the second run students can really make their own Personal Development Plan (PDP) by deciding themselves on the learning path through the Competence Profile and making/changing/choosing their own Competence Development Plan (CDP) for each Competence.
This will be worked out in May/June.

3.1.5 Implementation and deployment plan

FMM – 1 (X) & FMM 2 (Y)	March 08	April 08	May 08	June 08	July 08	Aug 08	Sep 08	Oct 08	Nov 08	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	May 09	June 09	July 09
TENC Server install & validation	X	X															
Competence based content transformation		X	X							Y	Y						
Connect/adjust content to available Tooling			X	X								Y					
Set up learning activities on server				X	X	X											
Participant acquisition					1/7	X	15/9						Y	Y			
Registration					1/7	X	15/9						Y	Y			
Pilot activity							22/9	X	15/11					Y	Y	Y	
Analysis and reporting									X	X						Y	Y
Workshop in Nile Basin on TENCompetence Project													Y				

Opening and registration for external participants will start on 1 July till 15 September 2008. Attention will be paid to attracting participants from the Nile Region. For that reason a briefing was organised in April with a group of MSc participants from the Nile region, who were finishing their MSc. They agreed to act as stewards for involving other water professionals from the Nile Basin region in the pilots.

The actual pilot will start on Monday 22 September and last till 15 November 2008 (10 weeks).

3.1.6 Stage of the preparation phase

- The FMM module is being transformed from a topic-oriented module into a more competence based learning plan.
- A TENCompetence Server setup was done, but there appeared a problem with the timing. Every day the server stopped after some time and had to be restarted the next day. WP3 gave advice which solved the problem. The solution will be added to the TENCompetence server installation setup documentation. Now, the use of the PDP and LearnWeb 2.0 tools is being planned.
- For UNESCO-IHE the digital content that has been produced in the recent past was quite an investment. Therefore there are reasons to allow only access to that content

for 'registered' users.
It has been explored how this proprietary issue can be dealt with in the current TENCompetence infrastructure. It seems that a 'closed' Community is a viable option, since the Moderator of that community determines who has access to the community and the resources.
Nevertheless this still needs to be explored, especially with regard to the new Webclient environment and the available tools and functionalities, replacing aspects of currently practised Rich Client PCM.

3.1.7 Training needs

It would be very useful if an introduction (audio + video) is created that introduces the TENCompetence concept(s) and the actual Webtools (to give the overview). For the different webtools a specific introduction animation/movie should be available, that can be consulted by learners, on demand basis.

3.1.8 Discussion

The following ideas summarize why the Water Management pilot is interesting for TENCompetence validation:

- The concept behind the project contains many components that are interesting in the context of educational innovation in UNESCO-IHE institute;
- So far we have not been much looking outside; this high quality consortium would give this opportunity. It can help us further develop our educational innovation;
- We are evaluating our digital learning environment (I-Learning Environment). TENCompetence develops its own environment. The process within TENCompetence can help us to better formulate our requirements for a DLE for the future, based on our pedagogical approach(es);
- Besides academic education UNESCO-IHE is also targeted at capacity building and competence development in a broader sense. Our current involvement in and focus on network development of professionals needs further development in terms of ways to support knowledge sharing and competence development within these networks. This EU project can help us in exploring and testing the virtual environment to nurture capacity and knowledge enhancement;
- The pilot enables UNESCO-IHE to further develop contents of a 3-week module Flood Modelling and Management within the TENCompetence infrastructure and to test and evaluate it;
- The pilot enables UNESCO-IHE to develop, test and evaluate a Decision Support Systems module and digital knowledge sharing environment for water professionals in the Nile region within the TENCompetence infrastructure;
- Where possible involvement will be sought with HRI (Egypt) and the involvement of Nile basin participants;
- It is important to note that by the time the project ends (2009) IHE is projected to move further into e-learning business;
- The field of water related Decision Support Systems is part of the competence domain of UNESCO-IHE. It is our challenge to explore new ways to support competence development of professionals in the water sector in this field with the help of the TENCompetence project. Currently e-learning activities are being reviewed, and there is a desire to explore new ways of knowledge sharing and transfer.

3.1.9 Future Water Management pilots

The pilot will cover the domain of Decision Support Systems (DSSs) in the fields of water resources management and a very broad context. Water resources management (WRM) is seen here not only relevant for traditional water users such as agriculture, industry, water supply, navigation, etc. In sustainable development context WRM includes the whole spectrum of issues related to the aquatic and natural water-dependent environment, and relates these issues to the traditional development objectives. DSSs development and use for this kind of WRM is a challenging task and needs to be introduced to the learners in a structured manner that enables the understanding of the intertwined concepts. Although the methods used for DSS are quite generic, their adaptation to particular WRM problems needs WRM domain knowledge and understanding. The main focus of the pilot is in obtaining competencies of choosing the most appropriate DSS method for a given set of WRM problems.

In order to achieve this, the pilot will cover the topics of:

- General introduction to decision making and the role of decision support
- Decision support approaches and methods (optimisation, multi-criteria methods) and their applicability to different WRM problems
- Existing tools for decision support (including detailed introduction to some tools and hands on exercises with these tools)
- Technologies for DSS development (light introduction)
- Critical issues in development and use of DSSs for multi-stakeholder participation

The contents of the pilot will be quite generic, introducing concepts that are widely applicable in many different countries, regions and decision making context. Since the target group in the pilot are water professionals from the Nile Basin, a region with some quite specific WRM problems (e.g. trans-boundary issues of WRM), the pilot will separately introduce the characteristics of the Nile Basin and the specific DSS requirements.

This pilot is strongly linked with an ongoing project on Masters Education of Nile Basin participants in the field of hydroinformatics with special focus on DSS development and implementation, which is carried out at UNESCO-IHE. The graduates from this programme will play the important role of coaches during the pilot run planned for 2009. The introduction to their roles as coaches has started already in April 2008 – during a special organized event - while these participants were still at UNESCO-IHE. The planned face-to face workshop (Q1 in 2009) will bring all learners, coaches and teachers together in order to prepare the set-up for the actual pilot run that will take place most likely in May 2009.

In a broader context this pilot is also linked to the project of development of a Nile basin Decision Support System, which is supported by the Nile Basin Initiative (NBI) – Water Resources Planning and Management (WRPM) project. This project aims at developing a comprehensive DSS for the Nile Basin which will become the most widely used tool in the basin for dealing with current and future WRM problems. This project is in its initial stage, and the deployment of the developed DSS is expected to be in about 3 years. The link with this pilot is essentially in testing the TENCompetence approaches and platform for the capacity building in the region, and especially training

of future users of the newly developed Nile Basin DSS. The TENCompetence infrastructure will be evaluated for its effectiveness and added value with regard to life long learning support to the DSS professionals and to enable them to use the infrastructure for developing DSS communities in the Nile Basin region.

In Q1 of 2009 a Workshop will be organised in the Nile basin region to promote the TENCompetence approach and infrastructure, in cooperation with representatives from NBI and HRI-Egypt (to be determined yet). The concept of life long learning, learning communities and the digital infrastructure and tools will be introduced. The Nile basin participants from FMM-1, as well as the previous MSc professionals will play a role in the program. In April-May 2009 the FMM-2 and the DSS-module will be launched on the TENCompetence infrastructure for the Nile basin region. After the pilots it is suggested to conclude during Q4 in 2009 with a Conference/Seminar in the Nile Basin with the support of NBI-water project management, promoting the potential strength and actual experience in supporting capacity and community building in general, and related to water decision support tools in specific. The DSS pilot part will be managed by Dr. A. Jonoski (UNESCO-IHE, Dpt. HIKM).

3.2 Agora pilot

3.2.1 Short description, user groups, setting, tooling and aim

Short description
The general goal of the pilot is to test the TENCompetence infrastructure and pedagogical model(s) in their ability to support **competence development and lifelong learning of adults in languages and information and communication technologies (ICT)**. This is one of the main areas on which Agora is focused. Agora intends to facilitate the inclusion of adults into the active fabric of current society, in which ICT and languages are of the utmost importance in order not to be left out. The TENCompetence infrastructure will be mainly tested as a tool for developing ICT and language (English and Spanish) competences due to the intrinsic motivation to learn (some participants may also have professional re-training objectives). The target participants are people who want to share knowledge, skills, perspectives and views with others in order to practice and develop new knowledge. A first version of the pilot with the TENCompetence integrated infrastructure will be run in 2008. A second version of the pilot will be performed in 2009.

User groups
AGORA association as part of La Verneda School for Adult Education is an **organization** devoted to non-formal training of adults. It produces knowledge and wants to manage its dissemination. The learners participating in Agora are typically organized in **groups** who want to share knowledge, points of view to develop their insights and competencies in the field. The **individual people** involved are mainly characterized by the fact that they want to develop competences due to intrinsic motivation to learn. They will not achieve a formal degree. Some of them (especially immigrants, who may have university studies, interested in developing language, i.e. Spanish, competences) need to acquire competences to find a job or to perform their job better (see Table 1).

Setting
The TENCompetence software could be used in the PCs available in the computer room of La Verneda. Participants can of course install the needed software at home as well. The computer room will be reserved for two hours in the morning and two hours in the afternoon during two months for the pilot participants. They can freely use the PCs for developing competences using the TENCompetence infrastructure implemented according to the needs of the pilot. One staff person will be available in case learners need technical support, etc.

Tooling
According to the use narratives of Appendix 4, the tooling that will be used in this pilot are: the **PCM**, **ReCourse**, **PDP**, **LearnWeb 2.0,** and possibly **Overview** (see also Appendix 1 for a short description of the tools).

Roles and number of persons
The roles involved in the pilot include:

- staff installing the software in La Verneda: two persons from UPF
- integrators of TENC tools on the already existing learning system of La Verneda: one person from UPF
- content developers: five persons from Agora and two supporting persons from UPF
- competence providers: two persons from Agora
- competence assessment provider: same as content developer
- staff providing technical support to learners: one or two person from Agora
- learners: more than 100 learners interested in developing language (Spanish, English) or/and ICT competences. The learners interested in Spanish are typically immigrants with an age ranging from 20 to 40 years old. English competences are typically of interest for learners between 30 and 60 years old. And learners wanting to develop ICT competences are typically between 40 and 65 years old.
- staff collecting data from questionnaires: persons from Agora
- researchers observing the usage of the software in the computer room and conducting focus groups: three person from UPF
- study advisors: the persons from Agora that develop the content
- pilot evaluators: mainly persons from UvA, OUNL and UPF

Aim and expectation of the pilot
Participants are expected to reinforce and improve their competence level in languages and ICT according to their interests and needs. They are also expected to share knowledge and view with the aim of practicing and developing new knowledge.

3.2.2 Context of the pilot

The general motivation of Agora is to promote social and educational inclusion of those adults who have been excluded from formal education. To solve this situation, on 1986 the Association of current participants Agora was established with the main aim of providing a useful education to those people who had been left out from formal education (and traditional educational settings were out of their context). One of the main challenges of the School is to explore new ways to support a wide range of competence development and knowledge sharing for adult lifelong learners (Pérez-Sanagustin et al., in press).

On the one hand, Agora promotes diverse learning activities addressed to people without basic academic degrees. These activities include language learning (Catalan, Spanish, German, Arabic, French, English, etc.), preparation for university access tests, basic literacy and literary gatherings among many other workshops. On the other hand, it offers a wide range of cultural activities for people with no higher education degrees. Among all these activities, Agora specifically emphasises the development of activities oriented at promoting Information and Communication Technologies (ICT). Agora has extensive experience in the ICT sector, and since 1999 the association administers an OMNIA Point (computer labs distributed over Catalonia by the government to facilitate access to ICT for those with difficulties to make us of them). ICT are used both for learning about ICT itself and as a tool in studying other topics. Another key objective of the lab is to facilitate access and promotion within the labour market starting from the training (e.g.; learning to write documents, use the e-mail and search for information on the Internet efficiently) and the professional re-training (e.g.; keeping people with some professional experience up-to-date about recent developments in ICT). Through these actions, people not only learn how to use and deal with ICT which gives them access to the labour market but also enables them to participate more widely in society. AGORA is based on democratic participation, opening all decision-making spaces to any participant of the organization.

The following **scenarios** (linked to the use cases attached in Appendix 4) illustrate this context:

- Ana is a mother of three. Ana was born in the 1940s in the south of Spain. She suffers from traditional age-related changes in functional abilities, lacks computer experience and has low levels of education. She currently lives in Barcelona. However, most of her adult children live in the Canary Islands, because of work prospects. Her adult children use computer technologies on a daily basis. Nevertheless, Ana does not use them at all. They are attempting to win Ana over the use of computers, especially for communication. Her adult children urge Ana to use the email and other ways of computer-mediated communication, because it is far cheaper than giving them a call. Ana has little acquaintance with computer-related technologies. Nevertheless, she has a vested interest in learning how to use computers, especially the email and the Messenger, in that she wishes to talk more often to their nearest and dearest. Ana is participating in La Verneda adult centre in order to satisfy her need. She has recently bought a computer and has learned how to use the basics of email, which lives up all her expectations.

- Pedro started to use computers 5 years ago. He started to learn how to use computers because he found them to be interesting, on the grounds that many people use them. After taking several courses in La Verneda adult centre, he can use a broad array of computer applications with little or no support from expert users. He has recently uploaded his personal web page to a public web server. He spends lots of hours working on his web page, which contains a lot of information about Spanish National Garden and wildlife. Pedro loves forests and animals, because it brings them abiding memories of his childhood. Nevertheless, he has some difficulties in conducting specific tasks; most of them related to web design, such as working with tables and links. He has also problems in carrying out other tasks in a way with which he is not familiar. Nevertheless, Pedro aims to learn more and new things, because he wants to recycle his knowledge about computers. Pedro feels that he has

got stuck; this is why he is still participating in La Verneda activities, as well as being in touch with his friends, with whom he share his projects (e.g.; information related to his web page: photos, text).

3.2.3 Relevance of TENCompetence for the pilot context

The topic of the pilot will be interesting for the potential participants. The type of activities proposed in the pilot has been carried out in the School for years.
The School provides a physical and organizational infrastructure (with PCs and smart boards) to organize live events for training in the PCM, and a practical scenario to devise a TENCompetence organizational infrastructure. Participants will be able to use the TENCompetence infrastructure in the computer classrooms of La Verneda School or at home, which opens up a wide range of learning opportunities (strengthen the communication between participants out of the school, learn to use computers by using them in their houses…)

TENCompetence offers an interest opportunity for Agora also because La Verneda is currently re-orienting their training into competence development programs. These programs are planned to be offered even beyond of the synchronous courses currently offered to the participants. The TENCompetence infrastructure and models offer Agora a way of providing competence development opportunities that can be personalized and followed asynchronously. Participating in a European initiative like TENCompetence enables Agora to be aware of the new tendencies in the field and to offer their learners an appropriate technical and organizational infrastructure, using opensource standards-based, sustainable and innovative technology. The project also facilitates the possibility of sharing experiences with other European institutions. This initiative will enable the continuation of the efforts already done in other European projects (eLearning) like OpenDock or AbeCampus.

3.2.4 Description of the competence profiles and competences involved

In the area of ICT training for adults the competence profiles and associated competences are, among others (see the scenarios in section 2.2.2):

Competence Profile: File management [using the mouse, the keyboard, the Edit menus]
- Being able to create file
- Being able to rename a file
- Being able to delete a file
- Being able to Copy & Paste a file

Competence Profile: Windows management [using the mouse and the keyboard]
- Being able to open a window
- Being able to close a window
- Being able to minimize a window
- Being able to maximize a window

Competence Profile: Emailing
- Being able to send an email
- Being able to send an e-mail to three people
- Being able to reply to an email
- Being able to forward an email
- Being able to send an email with a photo
- Being able to create an email account

Competence Profile: MS PowerPoint
- Being able to create a presentation with 5 slides
- Being able to insert an image into an slide
- Being able to create a link from the slide 1 to the slide 5
- Being able to create an animated presentation
- Being able to save the presentation as a web page

Competence Profile: MS Word
- Being able to create a Word document with 3 pages
- Being able to use Heading 1, 2 and 3 to give a formal structure to the document
- Being able to insert an image into the page 2
- Being able to create a table with 2 rows and 3 columns
- Being able to delete a row
- Being able to delete a column

In the area of developing Spanish language competences the competence profile and associated competences are, among others:

Competence Profile: Basic level of Spanish
- Being able to introduce yourself in Spanish
- Being able to perform a call in Spanish
- Being able to use Spanish public transport
- Being able to visit the doctor in Spain
- Being able to go shopping in Spain

In the area of developing English language competences the competence profile and associated competences are, among others:

Competence Profile: Basic level of English
- Being able to use the basic English verbal tenses
- Being able to introduce yourself in English
- Being able to count in English
- Being able to formulate and answer simple English questions
- Being able to use basic English vocabulary

Competence Profile: Advance level of English
- Being able to use advanced basic English verbal tenses
- Being able to read English texts
- Being able to write English texts
- Being able to understand videos/audios in English
- Being able to use advanced basic English vocabulary

3.2.5 Implementation and deployment plan

The plan for implementing, deploying and evaluating the first version of this pilot is as follows:

- June – July: implementation, integration of TENCompetence tools in the La Verneda own learning system
- June - September: develop the required resources and units of learning, create competence profiles, competences and competence development plans
- First week of September: training for Agora staff on the TENC infrastructure
- Mid-September: start deployment
- Until beginning of November: data collection for evaluation

A new version of the pilot will be carried out in the first half of 2009.

3.2.6 Stage of the preparation phase

The implementation and deployment has been already planned as detailed in the previous section. The plan includes implementing the access to the TENCompetence tooling through the web portal that La Verneda participants usually employ (see Figure 6) and the development of resources and units of learning to be considered in the competence development plans. These tasks have been already started (Pérez-Sanagustín, in press) On the other hand, the PCM has been translated to Spanish so that it can be easily used by the experts that will be using it.

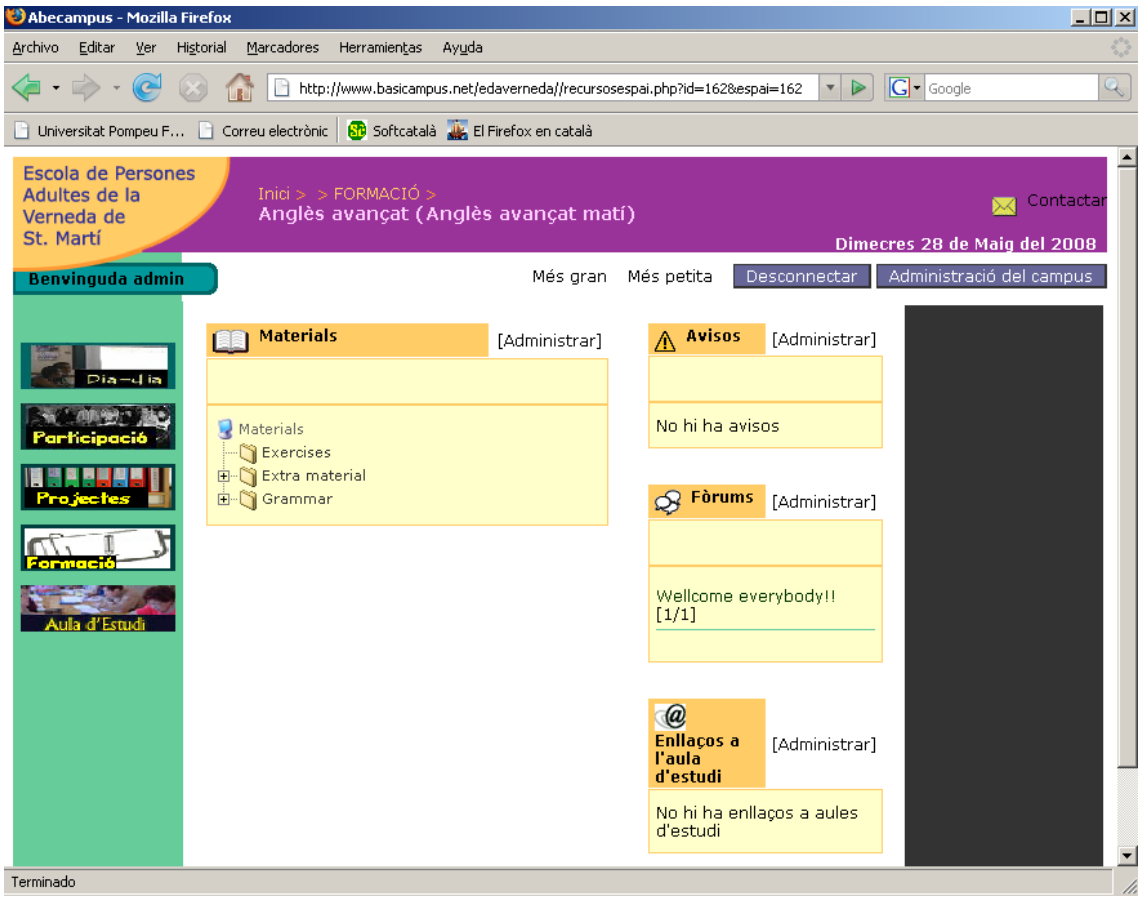


Figure 6. Current web system supporting learning at La Verdena School which is planned to be used as a GUI container of TENCompetence tooling (www.basicampus.net/edaverneda)

3.2.7 Training needs

Apart from manuals, videos, etc., Agora staff involved in the pilot will require training sessions at the beginning of September. These training sessions will include from the aim and objectives of the pilot to the technical use of the pilot implementation. The training sessions will be carried out by UPF in La Verneda.

3.2.8 Discussion

The following ideas envisage that the pilot is feasible and interesting from the perspective of TENCompetence.

- Due to the characteristics of the learners participating in the School, both the utility and usability of the TENCompetence infrastructure could be also tested towards universal user profiles (including age, gender, culture, race but also variety of needs and interests). By utility we refer to the degree to which the technologies emerged from the project support daily practices (e.g. Are the technologies useful for their daily grind?), whereas the concept of usability rests on how easy or difficult these technologies are to use. It will help to understand how to deal with the enormous diversity among learners since adults are the majority of people engaged in lifelong competence development.
- The approach of La Verneda (and thus of the pilot) is based on the acquisition of competences by using dialogic learning. Essentially, it is an educational approach that has proven to be very useful, as is being used in a growing number of adult centres, in order to teach adult and older people.
- La Verneda aims at promoting learning opportunities presented to the learners in a way that is negotiated with them and is based in their prior experience acquired in informal learning contexts.
- La Verneda provides a good environment to design scenarios where participants learn from peers sharing knowledge accumulated in real-life situations. That also enables them to organize the knowledge in ways that facilitate its reflection and deep understanding.
- The focus of the activities performed in La Verneda is quite broad. This will facilitate the involvement of a large number of participants. The nature of these activities also enables the design (and self-design) of competence development plans whose actions are not necessarily pre-organized in a specific natural sequence (in which actions would be to a certain extent strong prerequisites for another action).
- The assessment is seen in the School as a continuous process of measuring life-long progress. Depending on the person, the context is also related to professional work.

3.3 ICT Teacher Training pilot

3.3.1 Short description, user groups, setting, tooling and aim

Short description

This pilot tries to show how the TENCompetence framework and approach can be used for the implementation of the innovative and complex training methodology, developed in the frame of the Leonardo project The Innovative Teacher project (I*Teach). An important issue is that while in the first pilot we train mostly ICT teachers, now we are

going to include teachers from all subjects and levels, as well as to include teaching in schools.

User groups
The main target groups are teacher trainers and teachers who are willing to apply ICT in their subject domains. They participate in the training both individually or as a group of teachers from some school. They want to achieve new competencies, to receive some validation of the new qualification, and to form new communities of teachers willing to share knowledge resources, teaching plans and to share experiences in their own field. This training is in close cooperation with the Bulgarian Ministry of Education – ICT directorate, which not only supports the training, but also is an Associate partner of the TENCompetence project, signing the corresponding Memorandum of Understanding.

Setting
The pilots will be organised in two modes. The first one is the same as with the Cycle one pilot: short one day introductory and final workshops, and one month self-study from the workplace. The second mode will be one week intensive training on the workplace, where pilot trainers will need to go to the respective schools and to spend one week for this intensive training. Furthermore all trainees will continue their self-study, resulting in a final project. In both modes forming new communities will be essential for the success of the pilot training.

Tooling
According to timing of the implementation plan of this pilot and to the use narratives of Appendix 5, the tool that will be used in this pilot is the **PCM** (see also Appendix 1 for a short description of the tools).

Roles and number of persons
We intend to use the following roles of persons:
- Server administrators – two persons
- TENC tools facilitators – four people
- Competence developers – three people
- Content developers – four people
- Help desk – two people
- I*Teach methodology trainers – four people
- TENC pilot Evaluation providers – four people
- Pilots marketing and logistic organisation – three people
- Trainees – about 320 people

Aim and expectation of the pilot
This project develops **practical methodology, approaches and tools** targeted at day-to-day utilization by the **teacher trainers and teachers** of four identified **ICT-enhanced competences** in their work. These four ICT-enhanced competences are targeting information skills, presentation skills, abilities to work on a project, and abilities to work in a team.

We aim to prove the significance, usability and effectiveness of the TENCompetence software platform and methodology, being used for complex competence development programs in authentic learning settings. At this stage there is no suitable software

platform and tools aiming to fully support the I*Teach Methodology, so we expect that the use of the TENCompetence platform will significantly improve the way teachers learn and apply the I*Teach methodology.

3.3.2 Context of the pilot

The ICT Teacher training pilot is organised in groups between 15 and 30 teachers. Each pilot will take between one month and three months in length. There will be short face-to-face sessions (between one and five days) and long self-study period, where teachers have to apply what they learn in real work settings. Most face-to-face sessions will take place also in the teachers working environment.

3.3.3 Relevance of TENCompetence for the pilot context

Our observation shows that the knowledge and competencies gained during the I*Teach methodology training course do not finish with the end of the course (Stefanova et al., 2007). Most of the teachers face new challenges during their work in the class. They feel the need of continuing the exchange of good practices in the professional community formed during the course. Thus we identified a strong need of the trainees to continue their further competence development preserving all the information channels built during the initial training. This function is ideally suited for the TENCompetence infrastructure, and in this way all the I*Teach trainers found this new innovative tool providing teachers with a relevant support and ensuring their lifelong learning. They considered TENCompetence infrastructure to be an environment for converting an established professional community in a virtual one, rather than just a tool for communication. In addition, they could place through the tooling all the needed learning materials and other resources at teachers disposal, as well as to prepare distance training for I*Teach scenarios. But most of all, their experience was to use successfully the infrastructure for teachers' competence development and to give them a chance to continue their work on eLearning materials in collaboration with other colleagues and students. TENCompetence provides an important platform for putting the idea of *collective intelligence* in action.

3.3.4 Description of the competence profiles and competences involved

The main competences involved are the so-called Enhanced competences/skills, which are an extension of soft skills, where ICT is used to enhance the ordinary skill. So ICT is used as a means to improve the skill.

There are four main competence development programmes included in this pilot:
1) How to teach information skills using ICT
2) How to teach presentation skills using ICT
3) How to teach working on a project skills using ICT
4) How to teach working in a team skills using ICT

Each one is further sub-divided in other sub-competences:

The first one – how to teach information skills - includes the following sub-competences:

- teaching the ability to determine the information problem
- teaching the ability to identify the relevance of the various information sources
- teaching systematic search by application of relevant searching techniques
- teaching how to localize and acquire the found information
- teaching how to evaluate the found information and (if necessary) to readjust the search
- teaching how to process the found information effectively, in order to reach the preset goal
- teaching how to use the found information ethically and legally

The second one – how to teach presentation skills – includes the following sub-competences (skills):

- teaching how to order and select information
- how to teach language proficiency
- how to teach the building of a presentation
- how to teach presentation design
- how to teach the ability to account for information
- how to teach the ability to use the proper tool properly

Four **sub-domains** have been identified with specifics of the presentation skills.

a. Written presentation
b. Oral presentation
c. Short presentation
d. Web presentation

Here follows a specification of the presentation skills per domain:

Written presentation:

- how to teach the ability to order and select information
- how to teach the command of the language
- how to teach the ability to build up a report
- how to teach the ability to lay-out a report
- how to teach the ability to make correct references and citations
- how to teach the ability to use a word-processor properly

Oral presentation:

- how to teach the ability to order and select information
- how to teach the fluency in the language
- how to teach the ability to build up an oral presentation

- how to teach the ability to design an oral presentation
- how to teach the ability to make correct references and citations
- how to teach the ability to use a presentation tool properly
- how to teach the ability of public speaking

Short presentation:

- how to teach the ability to order, select, and compress information
- how to teach the command of the language
- how to teach the ability to build up an short presentation
- how to teach the ability to lay out a short presentation
- how to teach the ability to make correct references and citations
- how to teach the ability to use a desk top publishing tool properly
- how to teach the ability to focus on the target group

Web presentation:

- how to teach the ability to order and select information
- how to teach the command of the language
- how to teach the ability to build up an web presentation
- how to teach the ability to design a hyper structure
- how to teach the ability to make correct references, citations, and links
- how to teach the ability to use a web publishing tool properly
- how to teach the ability to select and use multi media

The third one – how to teach working-on-a-project skills – includes the following sub-competences (skills):

- how to teach the ability to identify tasks and subtasks
- how to teach the ability to make a planning
- how to teach the ability to divide tasks
- how to teach the ability to communicate internally
- how to teach the ability to communicate externally
- how to teach the ability to keep track of the progress
- how to teach the ability to integrate results
- how to teach the ability to use the proper tools properly

The fourth one – how to teach working-in-a-team skills – includes the following sub-competences (skills):

- how to teach the ability to communicate internally
- how to teach the ability to communicate externally
- how to teach the ability to give feedback
- how to teach the ability to receive feedback
- how to teach the ability to resolve conflicts
- how to teach the ability to support the team loyally, as a good colleague
- how to teach the ability to take responsibility

In general, communication skills can be seen as the basis for all of the other skills. Most of the presentation skills are also used and are necessary while working on the development of working on a project or working in team skills. The last two major skills also share some common sub-skills. In the following figure you can see the general structure and relationships between all the competences and skills involved.

The learners go through the orientation phase, and determine the competences to be developed together with the teachers. The learners can choose their own CDP and learning resources to be used, as well as they develop by themselves additional learning resources. Each participant will acquire the level best suited to her/his efforts, background and motivation.

3.3.5 Implementation and deployment plan

Name of Activity	Time schedule
Design the training sessions	Till 15th of June
Prepare the exact competence development plan	Till 15th of June
Develop the training resources	Till 15th of June
Develop the first plan for all the training groups	Till 25th of June
Prepare all the needed resources on the servers	Till 25th of June
Set up the help desk	Till 25th of June
Prepare the evaluation instruments	Till 25th of June
Start the training of the first group	Around 29th of June
Expected end of the training	Middle of October
Analysis and reporting	Ongoing

3.3.6 Stage of the preparation phase

Most of the training plans and resources are ready. The exact training plan for most of the groups will be finalised by the 10th of June, and the whole training schedule will be clear at the end of June.

3.3.7 Training needs

During the first Cycle pilot we train all the experts and trainers how to use PCM. It was identified, that we need to have a Bulgarian version of the PCM, as well as translated user manuals in Bulgarian language. As a result of the preparation phase for the pilots, we provided both translation of all the menus and messages inside the PCM in Bulgarian language, as well as the translation of the PCM Users guide in Bulgarian language.

3.3.8 Discussion

The ICT Teacher training pilot is covering all of the TENCompetence seven main goals, and is providing flexible and various contexts for applying the TENC infrastructure for training specific complex competences. The I*Teach methodology suits well into the TENCompetence domain model and seems to offer great opportunities for testing various aspects of the TENCompetence methodology and framework.

The pilot is trying to test the whole competence development Cycle, starting with the definition of the competences, design and development of the relevant knowledge resources, learning activities, training programs and social networks. And it is also trying to cover the assessment of the competences, especially with the use of new and not standard forms of assessment.

In this respect we expect that this pilot can be used in all the three Cycles for testing all versions of the TENCompetence platform, in each Cycle stressing more on the issues more relevant for this specific Cycle/version of the software platform.

The domain of Teacher training on how to use ICT in teaching provides rich opportunities for testing the TENCompetence system. This pilot project has established a strategic partnership with the Leonardo project I*Teach, which is addressing the field of teacher training, identifying enhanced ICT skills, development of methodology handbook, and rich set of training programmes and resources. The main goal of the pilot is to adapt the training methodologies and curricula in order to use the TENCompetence framework, and to evaluate both the I*Teach methodology, as well as TENCompetence framework.

Thus the Teachers training in using ICT domain is challenging in a number of ways, which provide rich opportunities for validating the TENCompetence infrastructure, both in the Cycle 1 pilot and in later phases of the project.

3.4 Special Education pilot

3.4.1 Short description, user groups, setting, tooling and aim

Short description

Special Education Bulgaria (SEB) is the product of a two-year research project designed to create a sustainable nation-wide community of practice (CoP) for special education competence development in Bulgaria via the Internet. It is addressing Internet-based competency development and lifelong learning for special educators in Bulgaria. SEB's central purpose is to connect extant geographically-dispersed special education communities in Bulgaria.

User groups
Special Education Bulgaria (SEB) is a CoP for the following target group: special education researchers, practitioners, teachers in training, and parents. All they are involved during the SEB courses in life-long formal learning activities. Teachers and educators, willing to be trained via theses courses, are people with a need to develop new competencies related to the special education field, in order to perform their job better, or to change their current job. For this to happen, they need to be able to solve some types of specific problems or to learn to cope with specific situations, related to special education.

In this training special groups are formed, who have to solve complex problems and tasks related to special education (including parents, teachers, social workers). They need to work in collaboration in order to increase the chance of successful performance. They need to share knowledge, skills and points of view to develop their insights and competencies in the field of special education. This target group also includes several specific organisations: Training organisations, Public organisations and Social organisations all targeting to solve the problems of the people with special needs.

Setting
This pilot will coincide in the beginning with a month-long professional development program offered by Sofia University's Department of Special Education. The pilot specifically targets unemployed Bulgarian teachers interested in retraining as special educators. About fifteen students are anticipated to enrol for each course and attend five days a week for four weeks. Two 150-hour modules will be covered during each intensive course. The modules available include education of the hearing impaired; education of the visually impaired; education of the intellectually disabled; and speech therapy. In addition, 300-hour modules are available for adapted physical activities; and social work. The total number of month-long courses offered will depend on demand.

Tooling
According timing of the implementation plan of this pilot and to the use narratives of Appendix 6, the tool that will be used in this pilot is the **PCM** (see also Appendix 1 for a short description of the tools).

Roles and number of persons
The roles involved in the SEB pilot are:
- two people installing the software
- one content developer
- two competence providers
- one competence assessment provider
- one community creator
- two people providing technical support
- 15 learners
- one person involved as a tutor/teacher/coordinator/mentor/study advisor
- two pilot evaluators

Aim and expectation of the pilot
This pilot is demonstrating the partnership between two research projects: SEB and TENCompetence. Both projects seek to engage Internet technologies, e.g., e-portfolio, online course management, and Web 2.0 social networking software, to facilitate professional development and lifelong learning. If successful, similar approaches may be taken for the professional development of special educators in other countries, especially those new to or soon to enter the EU.

3.4.2 Context of the pilot
SEB requires competency-development tools to better support it members, and TENCompetence requires long-term associate partners. Moreover, both projects expect that early and continual focus on sustainability will lead to long term adoption of a number and diversity of associate partners. For SEB, sustainability will depend on the quality and relevance of professional development tools and resources provided to its members. Hence, the development of a SEB test pilot for TENCompetence is a win-win opportunity.

3.4.3 Relevance of TENCompetence for the pilot context
The SEB project objectives correlate closely with several of the TENCompetence objectives. The website (http://www.specialeducationbulgaria.com/) provides discussion forums; chat rooms; documents, photos, and links repositories; online voting; RSS news feeds; a calendar and other tools and meets all of the necessary DCoP criteria laid out by Preece (2000) and Wenger et al. (2002) including, among others, the ease of navigation and quick, secure access.

What appears to be missing in the current website, however, is a direct link to standardized competencies and ways of developing such competencies. Hence, we expect the TENCompetence framework to provide all this missing functionality, and significantly to improve the SEB training process. This will add more structure in the overall training process, as well as to help each individual trainee to choose the best training and the right training path. As a result, the SEB pilot will better address all four TENCompetence core objectives, which will enable to teach and assess special education competencies and e-portfolios for substantiating such competencies.

3.4.4 Description of the competence profiles and competences involved
SEB is targeting the education of the visually and multiply impaired. The principle standard that is adhered is from the United States, and titled, Perkins School for the Blind Competencies for Teachers of Learners Who Are Deafblind (McLetchie & Riggio, 1997). The following competencies are addressed by the Perkins document:
(1) Effects of deaf-blindness
(2) Personal identity, relationships, and self-esteem
(3) Concept development
(4) Communication
(5) Auditory and visual systems
(6) Orientation and mobility
(7) Environment and materials
(8) Professional issues

The Perkins document lists a comprehensive set of competencies essential for all beginning special education teachers regardless of their specialization. It is in fact subsett from an international standard published by the Council for Exceptional Children (1995; 2003). The additional competencies addressed include:

(1) Philosophical, historical and legal foundations of special education
(2) Characteristics of learners
(3) Individual differences
(4) Instructional strategies
(5) Learning environments and social interactions
(6) Language
(7) Instructional planning
(8) Assessment
(9) Professional and ethical practice
(10) Collaboration

In particular, during the first training pilot, the following competences will be addressed:

(1) Understanding of the models for development of the visually impaired
(2) Ability to evaluate level of visual impairment
(3) Understanding of teaching differences for all levels of impairment
(4) Ability to prepare individual education plans
(5) Knowledge of textbook methods, strategic and technical
(6) Proficiency with Braille
(7) Integrating visually impaired students
(8) Early intervention
(9) Proficiency with technical resources
(10) Interdisciplinary knowledge of special education, collaboration
(11) Application of rehabilitation models
(12) Legal knowledge and application
(13) Effects of blindness
(14) Personal identity, relationships, and self-esteem
(15) Human anatomy: visual systems
(16) Orientation and mobility
(17) Professional issues
(18) Philosophical, historical, and legal foundations of special education

The Special Education Bulgaria (SEB) competence development community is designed to help Bulgarian special educators develop, assess, and track their professional competencies. The competencies tracked by this community are linked to competency-development resources available on the SEB website. The areas of professional competency targeted by this community are:

I. Deafblindness
II. Visual impairment
III. Hearing impairment
IV. Speech impairment
V. Intellectual disability
VI. Foundations of special education

We will target in this pilot the first two major competences.

I. Deafblind, teachers of learners who are

This competency can be attained by completion of a professional development course for Bulgarian teachers interested in training to teach learners who are deafblind. Successful completion of this 150-academic-hour course and requisite assessments leads to a certificate of proficiency to teach deafblind learners. The level of proficiency awarded by this course will depend on course assessment results as well as prior teaching experience and training; and supervisor and peer review.

The competencies targeted by this course are specified in the following document: 'Perkins School for the Blind Competencies for Teachers of Learners Who Are Deafblind' (McLetchie & Riggio, 1997). This is a widely-used international standard developed by the Perkins School for the Blind in the United States.

Prerequisite competencies: (1) teachers of learners who are visually impaired (2) teachers of learners who are hearing impaired. Waiver of prerequisites to be assessed on an individual basis.

Competencies:
1. Effects of deaf-blindness
2. Personal identity, relationships, and self-esteem
3. Concept development
4. Communication
5. Auditory and visual systems
6. Orientation and mobility
7. Environment and materials
8. Professional issues

II. Visually impaired, teachers of learners who are

This competency can be attained by completion of a professional development course for Bulgarian teachers interested in training to teach learners who are visual impaired.

Successful completion of a 150-academic-hour course and requisite assessments leads to a certificate of proficiency to teach visually-impaired learners. The level of proficiency awarded by the course will depend on course assessment results as well as prior teaching experience and training; and supervisor and peer review.

The competencies targeted by this course are specified in the following document: 'Professional competencies for special educators of the visually impaired' (Tzvetkova-Arsova, M. 2004). This document was widely used in the education offered by the Department of Special Education at Sofia University.

Prerequisite competencies: (1) foundations of special education. Waiver of prerequisites to be assessed on an individual basis.

Professional competencies for special educators of the visually impaired include the following teacher's specific competences:

1. To demonstrate knowledge on Models for the development of the visually impaired
2. To evaluate the level of visual impairment using formal and non-formal procedures.
3. To teach all levels of visual impairment, including most severe cases.
4. To be able to design, choose and adapt Individual education plans.
5. To demonstrate the ability to apply the right textbook methods, strategic and technical.
6. To be proficient at highest level and to be able to teach the Braille system.
7. To assist the integration of the visually impaired in the normal school system.
8. To be able to make early interventions and to consult parents of the visually impaired.
9. To demonstrate professionalism in using special technical resources, choosing the right resources for each individual case.
10. To demonstrate interdisciplinary knowledge for working in a mixed teacher-doctor teams.
11. To be able to apply different models for rehabilitation of elderly people.
12. To demonstrate legal knowledge and application.

3.4.5 Implementation and deployment plan

1. Initial planning for blended course (both in class and online): January – March 2008.
2. Develop course materials and instruments: February-April 2008.
3. Preliminary testing with SU professional development courses: May 2008.
4. Video collection, lectures from professional development and undergraduate courses at Sofia University (SU), Dept. Special Education: May-June 2008.
5. Online content development and posting: May-June 2008.
6. Participant recruitment: May-June 2008.
7. Start the course: 15th of June 2008
8. First face-to-face course sessions: from 15th till 28th of June
9. Distance learning: July and August 2008.
10. Final face-to-face sessions: September 2008.

3.4.6 Stage of the preparation phase

All planning and content related activities implemented from instructional point of view. First online content materials developed. All participants recruited. All logistic about the first face-to-face course sessions ready.

3.4.7 Training needs

No further special training needs (see the requirements already identified in previous pilot descriptions).

3.4.8 Other issues of interest in the pilot

The main issue will be in integration of the SEB website (implemented using Moodle system) and the TENCompetence tools and infrastructure. We are planning to integrate the Mahara web tool (http://www.mahara.org/) with the SEB Moodle site and the TENC web-based tools (when available). Mahara is an open source ePortfolio and social networking web application. It provides users with tools to create and maintain a digital

portfolio of their learning, and social networking features to allow users to interact with each other. Mahara provides users with blogs, a resume builder, a file manager and a view creator - a tool to help users create arrangements of their content in a particular way for others to see.

3.4.9 Discussion

TENCompetence Objectives currently addressed by SEB:

1. "Methods and technologies for the creation, storage, use, and exchange of knowledge resources"
2. "Models, methods and technologies for the creation, storage, use, and exchange of networks of competence development programs"
3. "Standards-based methods and tools for the creation, storage, use, and exchange of formal and informal learning activities and units of learning"
4. "Methods and technologies for the creation, storage, use, and exchange of formal and informal competence development programs"

3.5 Digital Cinema pilot

3.5.1 Short description, user groups, setting and aim

Short description
This pilot is a revised extended version of the Digital Cinema pilot carried out in Cycle 1. Its main goal is to test the TENCompetence infrastructure and pedagogical models in their ability to support competence development of busy professional in the area of Digital Cinema and 3D. The competences supported in this pilot are tool-oriented. In Cycle 1 the focus was on the Brainstorm software which enables the creation of Virtual Sets. In Cycle 2 competences related to effectively using the new NINOS infrastructure for automatic audiovisual production will be incorporated in the pilot. The aim is trying to increase the number of potentially interested participants, having in mind again that the domain is quite specific and the target users are busy professionals. The pilot will be starting by mid-September and will probably continue until April 2009. The tooling applied will be updated when available and evaluation data will be collected at different moments along the pilot so that some preliminary results are available by the end of 2008.

User groups
The user groups of this pilot are professionals of the digital cinema and 3D areas; practitioners from the commercial world, academics and future designers in graduate schools. They are typically **individuals** with a need to develop competences to perform their job better.

The Brainstorm Company (developer of the Brainstorm software) and the SALERO project (EU project developing the new NINOS infrastructure) represent **organizations** that produce knowledge and want to manage and disseminate the knowledge delivered in the form of these tools.

Setting
The pilot is open to any national or international person interested in the topic of the pilot. The pilot does not constrain the setting; it depends on the circumstances of each person. Participants could develop their competences through the pilot infrastructure from different settings: their workplaces, their homes, training sessions arranged by the organization producing the tools.

Tooling
According timing of the implementation plan of this pilot and to the use narratives of Appendix 7, the tooling that will be used in this pilot are the **PCM and ReCourse, and** the **PDP, LearnWeb 2.0 and SLeD** (see also Appendix 1 for a short description of the tools).

Roles and number of persons
The roles involved in the pilot included

- developer of the GUI container linking to TENC tools: one person from UPF
- content developer: four persons from UPF, two of them deeply involved in the SALERO project, experts on the competences needed to effectively use the NINOS infrastructure
- competence provider: the two persons involved in the SALERO project
- competence assessment provider: same as content developer
- staff providing technical support: two persons, one expert
- learners: see User Groups, the number of participants cannot be known in advance since the pilot is not directed to a specific group / community that already exists. The pilot will be publicized in different specialized forums, etc.
- expert: same as competence providers
- researchers and pilot evaluators: persons from UPF, UvA and OUNL

Aim and expectation of the pilot
From the point of view of the individual learners, they are expected to develop competences associated to the use of new tools in the area of digital cinema and 3D according to their professional needs. From the perspective of the organizations, the expectation is to train professionals in the use of their tools (so that they disseminate the knowledge they are producing) and to achieve a complete training package enhanced iteratively according to the professional feedback obtained in the pilot.

3.5.2 Context of the pilot

The context of the pilot shares the ideas summarized in section 1.2 and detailed in (Griffiths et al., 2006; Moghnieh et al., 2008a; Moghnieh et al., 2008b) regarding the Digital Cinema pilot. Moreover the new version of the pilot adds the context around the SALERO project (http://www.salero.eu/). SALERO aims at making cross media-production for games, movies and broadcast faster, better and cheaper by combining computer graphics, language technology, semantic web technologies as well as content based search and retrieval.

SALERO will define and develop 'intelligent content' for media production, consisting of multimedia objects with context-aware behaviours for self-adaptive use and delivery across different platforms. 'Intelligent Content' should enable the creation and re-use of complex, compelling media by artists who need to know little of the technical aspects of

how the tools that they use actually work. Based on research into methodologies for describing, creating and finding intelligent content, SALERO will develop toolsets to create, manage, edit, retrieve and deliver content objects, addressing characters, objects, sounds, language sets, and behaviours. The toolsets developed and the concept of intelligent content will be verified by experimental productions.

The pilot plans to build on the first Training for Professionals workshop for tools created within SALERO that took place at the University of Art and Design Helsinki (Taik) 13.-15.5.2008. The event was intended for professionals in the 3D area; practitioners from the commercial world, academics and future designers in graduate schools, who were interested in learning about SALERO experimental software and also to try out the software for themselves. The object of the training session was to teach working tools to the participants - and gain experiences from the process for future training events. The tools being presented had to be have reached a stage in their development, where they could viably be taught to the outside community. For this reason, Fundació Universitat Pompeu Fabra's (FBM-UPF) Program Editor was the tool presented.

The training event included a one day introduction session, and two days of hands-on training. The purpose of the first day was also to allow busy professional practitioners to get some idea of the tools, even if they could not attend the whole 3-day event. One of the objectives of this course was to compile training information for the course and for future use. For this first training session, FBM-UPF as the tool developer had created a temporal information website: http://ninoscompetence.wordpress.com/ The website includes a video that explains the main features of the Program Editor, showing some results obtained with the system. There is also a link to download Program Editor, should the viewers want to test it. This website will be replaced by the TENCompetence infrastructure as soon as the implementation for Cycle 2 is ready. A total of 17 professionals participated in the event. Lecturers from all Universities of Applied Science with 3D education in the greater Helsinki area attended, as well as 3D lecturers, designers and researchers from the University of Art and Design Helsinki and representatives of 3D industry.

3.5.3 Relevance of TENCompetence for the pilot context

The SALERO project and the Brainstorm Company require, as organizations producing knowledge and tools, means that promote dissemination. One important way of achieving dissemination is training. This rationale has been largely discussed in D4.1 and D4.2 in the context of Digital Cinema. SALERO is also interested in offering a training platform that enables busy professionals an effective way to develop competences associated to their tooling considering their situation of lifelong learners. An interesting solution to such a platform can be provided by TENCompetence infrastructure and models.

3.5.4 Description of the competence profiles and competences involved

This pilot involves the competences promoted in the Cycle 1 Digital Cinema pilot (see again D4.1 and D4.2) and the new competences around the tools involved in the NINOS infrastructure. The NINOS competence profiles (and their competences) are not closed yet. The main reason behind is that tools to be learned had to have reached a stage in

their development, where they could viably be used by the community outside SALERO. What has been already decided is that the **competences needed for using the "Program Editor"** will be at least included (see Figure 7 and Figure 8). Further competences will be incorporated progressively as soon as the associated tools are ready.

Program Editor, is a real-time, timeline-based animated production editing software. The production is described through a sequence of animation clips on different tracks. Those clips could represent cameras, characters, sets and props (amongst other things) and their changes along the time. It also allows **managing the data for lipsynch, procedural animation** (eye blinking and eye to object aiming) and **Activation/ Evaluation values for facial emotional expression**. For example, during the training event described in section 3.5.2, the participants have been introduced to the Activation/Evaluation feature, which is a part of the Program Editor. It uses the output generated by the *Maskle*, software that makes it possible to automatically rig and weight a character's face. It also generates the shapes that must be interpolated to obtain several facial expressions that can be then re-used on different characters (accordingly to the Synthetic Model for Facial Expression Animation).

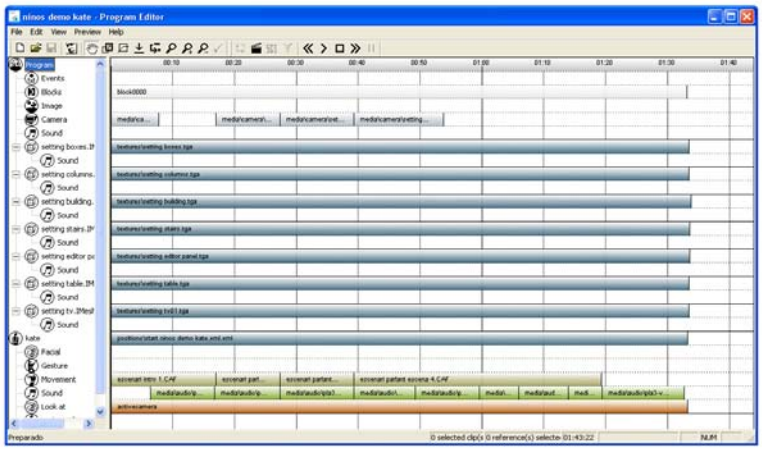


Figure 7. The Program Editor timeline

Figure 8. The Program Editor preview window

3.5.5 Implementation and deployment plan

The pilot will be starting as soon as the implementation is ready (planned by mid-September) and will probably continue until April 2009. The SALERO tooling under training as well as the TENCompetence tooling applied will be updated when available even during the deployment. Evaluation data will be collected at different moments along the pilot so that some preliminary results are available by the end of 2008.

Since the TENCompetence tooling (except from the PCM) to be used in the pilot is not available at the time of writing this document, and with the aim of taking advantage of the possible events to interest potential participants in the pilot, a temporal information website has been created: http://ninoscompetence.wordpress.com/ This website will be replaced soon by a web container integrating TENCompetence tooling.

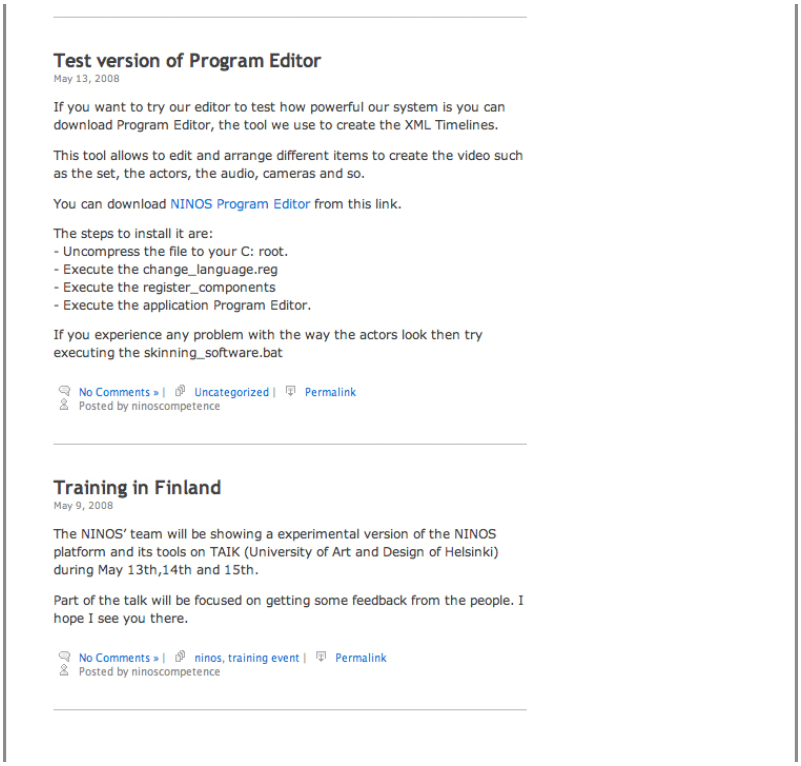


Figure 9. Ninos-competence temporal website

3.5.6 Stage of the preparation phase

The current stage of the preparation phase involves two main issues: the implementation of the GUI container so that it provides access to TENCompetence tooling and extra functionalities, and practical issues including technical requirements and training materials. The selected GUI container for this pilot is ELGG (see Figure 10).

Elgg is an open source Web application combining elements of weblogging and social networking to create what its authors term a "personal learning landscape" (ELGG, 2008). The application promotes learner-centered expression through "personal web publishing", while facilitating the formation of peer-to-peer (P2P) learning communities in which knowledge sharing, conversation, and reflection can take place. Everything can be shared among users with access controls and everything can be catalogued by tags as well. Elgg is also a social platform based around choice, flexibility and openness: a system that firmly places individuals at the centre of their activities.

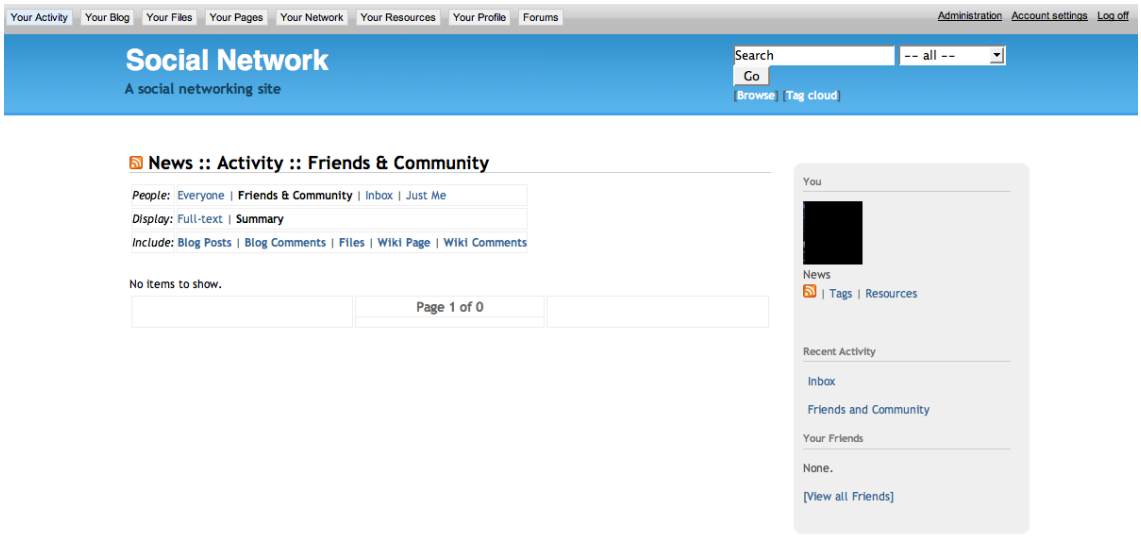


Figure 10. ELGG platform to be configured as the GUI container for the Digital Cinema pilot

The actions needed to achieve the competences related to Brainstorm software for the creation of Virtual Sets are already available from Cycle 1 in the form of IMS LD compliant Units of Learning (UoL) that can be run with the SLeD WP6 runtime system (preliminary version of the pilot, see D4.2) and in the form of simple activities created in the PCM. In this Cycle we plan to revise the UoLs so they include new functionally delivered by WP6 (for example, widgets and QTI questions).

The actions related to the NINOS infrastructure will be mostly created using the PCM as an authoring environment. These actions will be accessed through the PDP. Some resources have been already created for this purpose. For example, a video that explains the main features of the Program Editor, showing some results obtained with the system (see http://ninoscompetence.wordpress.com/).

The training event on the NINOS Program Editor revealed some practical details important for the technical preparation of the course. The event highlighted the need to take into consideration the various platforms people use and the facilities available for arranging courses. For example, the Taik Media Lab is a Mac environment, whereas Program Editor has been created as a Windows application. It was possible to run Program Editor, since the new Macs include Windows operating system. However, tweaking was needed to get the programme to run on these. A larger problem was, that the Program Editor is created for NVIDIA -graphics cards, whereas some computers use ATI graphics cards. This was a problem, which was finally bypassed by using CPU instead of graphics cards to run the course. It is important to take these issues into consideration in the implementation and deployment of the pilot.

3.5.7 Training needs

Explicative videos and brief user manuals are expected to be very useful for the participants in the pilot. The manuals are preferred in HTML format so that they can be linked and easily consulted from the GUI container.

3.5.8 Discussion

The interest and opportunity of the Digital Cinema pilot for TENCompetence validation has been deeply discussed in D4.1 and D4.2. Though the domain is very specific and the target participants are typically very busy so that it is difficult to have a large numbers of participants in the pilot, its characteristics (context, setting, type of user group and organization) still situate this pilot as an interesting testing environment for TENCompetence.

4. Conclusions and future work

This report has revised the TENCompetence validation work which is organized in three cycles. After summarizing the conclusions obtained in Cycle 1, it has discussed the strategy adopted for Cycle 2 and the perspectives for Cycle 3. The emphasis of the strategy relies on implementing a combination of usage profiles (when possible depending on the context of each pilot and the tooling available at the moment of implementing it), demonstrating the flexible deployment of the TENCompetence technical infrastructure. Experience of the pilots is expected to provide the consortium with a real understanding of the challenges of achieving their objectives in a variety of settings and user groups. The evaluation plan for Cycle 2 pilots has been also introduced. It details the research questions addressed in these pilots and the methods and instruments that will be used to collect the quantitative and qualitative evaluation data. Then, each of the five pilots planned for Cycle 2 has been described, including its implementation and deployment plan. Pilot descriptions comprise explanations of the user groups, settings, competence profiles and tooling that characterize each pilot. They also summarize the stage of the preparation phase and provide some indications of the training needs.

Future work includes completing the implementation of the pilots and launching them as planned. The data analysis and interpretation to achieve evaluation results will be mainly done after the pilots' completion. However, intermediate results are planned to be obtained in some of the pilots. D4.4 is devoted to report these results. Moreover, the use cases associated to each pilot are themselves very relevant to the project. They will be evolving along the pilot implementation showing real life requirements. The analysis of the desired formulation of the use cases when compared to what is actually achieved with the results of the project will provide recommendations for system requirements and models. The experience reached in Cycle 2 will feed into the pilot implementation methodology which is being elaborated to support associate partners in Cycle 3 business demonstrators. This methodology will be complemented with specific training materials whose development is being coordinated by WP9. WP10 will also collaborate in this task by providing input related to guidance in the implementation of viable business models around the solutions developed in the project. WP4 is also working together with WP10 to secure proper embedding of these associate partners in the TENCompetence organizational infrastructure. In this way, consortium partners are already contacting potential associate partners, especially SMEs, interested in conducting business demonstrators. The planning for business demonstrators and the pilot implementation methodology will be delivered in D4.5.

References

Alexa Internet (2007), “Alexa: the web information company”, Retrieved 13th June, 2008, from http://www.alexa.com

Andrews, R. (2007) “Don't tell your parents: schools embrace MySpace”, *Wired News,* 19 April, Retrieved 13th June, 2008, from http://www.wired.com/culture/education/news/2007/04/myspaceforschool

Cheetham, G. & Chivers, G. (1996) “Towards a holistic model of professional competence”, Journal of European Industrial Training, 20(5), 20-30.

Cheetham, G. & Chivers, G. (1998) “The reflective (and competent) practitioner: a model of professional competence which seeks to harmonise the reflective practitioner and competence-based approaches”, Journal of European Industrial Training, 22 (7), 267-276.

Council for Exceptional Children (1995) “What Every Special Educator Must Know: the International Standards for the Preparation and Certification of Special Education Teachers”, Council for Exceptional Children, Reston, VA.

Council for Exceptional Children (2003) “What Every Special Educator Must Know: the International Standards for the Preparation and Certification of Special Education Teachers”, Council for Exceptional Children, Arlington, VA.

Elgg community (2008) “Elgg”, Retrieved 13th June, 2008, from http://elgg.org

Griffiths, D., et al (2007) “TENCompetence D4.1 Pilot evaluation plan” Retrieved 3rd April, 2008, from http://dspace.ou.nl/handle/1820/684

McLetchie, B.A.B., & Riggio, M. (1997) “Competencies for Teachers of Learners Who are Deafblind: Perkins National Deafblind Training Project”, Perkins School for the Blind, Watertown, MA.

Moghnieh, A., et al (2008a) “TENCompetence D4.2 Evaluation of Cycle 1 pilots” Retrieved 13th June, 2008, from http://dspace.ou.nl/handle/1820/1153

Moghnieh, A., Hernández-Leo, D., Navarrete, T., Santos, P., Blat, J. (2008b) “Supporting Distance Learning Activities and Social Interaction: a Case Study, Proceedings of the 8th International Conference on Advanced Learning Technologies in Santander”, Spain, June 1st-5th, 2008.

Moodle community (2008a), “Elgg”, Retrieved 13th June, 2008, from http://docs.moodle.org/en/Elgg

Moodle community (2008b), “Moodle”, Retrieved 13th June, 2008, from http://www.moodle.org

Koper, R., et al (2008) “TENCompetence D2.2 Updated use case models and underlying vision documents and pedagogical model definitions” Retrieved 13th June, 2008, from http://dspace.ou.nl/handle/1820/1152

Krekels, B., et al (2008a) "TENCompetence ID9.5 Report on training for Cycle 1 pilots" Retrieved 13th June, 2008, from http://dspace.ou.nl/handle/1820/1246

Krekels, B., et al (2008b) "TENCompetence ID10.2 Critical use cases and potential business model outlines" Retrieved 13th June, 2008, from http://www.partners.TENCompetence.org/file.php/37/ID_10-2/WP10_-_Business_Models_on_lifelong_competence_development_final.doc

O'Hear, S. (2006), "A space on the web that we control: imagine an e-portfolio based on personal publishing and social networking that can automatically link you to others with similar interests", *The Guardian*, 7 March, Retrieved 13th June, 2008, from http://education.guardian.co.uk/elearning/story/0,,1724614,00.html

Pérez-Sanagustin, M., Hernández-Leo, D., Santos, P., Sayago, S., Blat, J., (in press) "Dialogic learning and interactive groups: an IMS LD template integrated in runtime systems", Journal of Emerging Technologies for Learning.

Peterson, R., Herrington, J., Konza, D., Tzvetkova-arsova, M., Stefanov, K., (2007) "Investigating the role of ePortfolios and online courses in a Community of Practice" ePortfolio 2007 Conference, Maastricht, The Netherlands. Retrieved 13th June, 2008, from http://dspace.ou.nl/handle/1820/1112

Preece, J. (2000) "Online Communities: Designing Usability, Supporting Sociability" John Wiley, New York, NY.

Schoonenboom, J., Sligte, H., Moghnieh, A., Hernández-Leo, D., Stefanov, K., Glahn, C., Specht, M., Lemmers, R., (2008) "Supporting life-long competence development using the TENCompetence infrastructure: a first experiment", Proceedings TENCompetence Open Workshop in Madrid, Spain, April. 10th-11th, 2008.

Stefanova E., Sendova E., Nikolova I., Nikolova N. (2007) "When I*Teach means I*Learn: developing and implementing an innovative methodology for building ICT-enhanced skills", Proceeding of the IFIP IMICT 2007 Conference, Boston, USA, June 2007. Retrieved 13th June, 2008, http://dspace.ou.nl/handle/1820/1065

Tzvetkova-Arsova, M. (2004) "Some social issues in Bulgaria: integration and inclusion of socially disadvantaged groups—disabled and minority", paper presented at the International Fulbright-Hays Seminar, Sofia, Bulgaria, July.

Wenger, E., McDermott, R., & Snyder, W. (2002) "Cultivating Communities of Practice: A Guide to Managing Knowledge", Harvard Business School Press, Boston.

Appendix 1: Usage profiles and associated available functionalities for Cycle 2 pilots

Table 2 summarizes the TENCompetence profiles as defined as this stage of the project and the related tools available for Cycle 2 pilots. The specific TENCompetence terms are defined in Table 3.

Table 2. Summary of usage profiles and available tools

Usage profile	Description of the usage profile	Tools available	Comments
Create competence profiles and simple courses	**Creating / editing competence profiles** within a community context. **Create simple courses** within competence development plans which do not require IMS Learning Design (LD). Author perspective: - Setting up a Community. - Providing a Community with information on Competence profiles and/or Competences - Providing a Competence with a Competence Development Plan or separate Actions. - Providing Actions with Resources.	Personal Competence Manager (**PCM**) *(Rich client)* The PCM is a rich client application running on a desktop that can be used for the original usage profiles "Create course" and "Follow course". It also has base functionality for collaboration (Forum, chat, availability list), assessment (simple choice questionnaires), self-assessment (entering competence levels for acquired competences) and management of resources (uploading content, linking to internet pages)	The PCM supports functionality included in other usages profiles, which replace the PCM. Translation to Bulgarian and Spanish is available.
Personal development plan	Creating **personal development plan** for a specific user. Competence development plans are associated to competences and competence profiles created with the PCM. Users may adopt and adapt competence development plans existing in the system.	**PDP** *(Rich client)*	*Web client after May 2008.*
Create LD course	Creating / editing LD level A courses.	**ReCourse** *(Rich client)* Graphical editor to create / edit full IMS Learning Designs (Units of learning)It organises people and activities, assigning the former to the latter. Once completed designs can then be packaged and uploaded to the Coppercore server in one step	Graphical editor, LD level A. *QTI plug-in editor.*
Follow LD course	Playing LD courses with extended functionality for chat, forum, voting (implemented as "widgets")	**SLeD+APIS+Widget server** *(Web client)*	Localization is supported in the widget server so that the tool can be easily translated.
Share knowledge	This profile is directed at setting up communities to share knowledge about various topics. The resources and discussions about the resources are at the centre.	**LearnWeb2.0** *(Web client)* Finding/ publishing/ rating resources	*First version available by end of June 2008*
Overview	Providing an overview of links between users and their Competence Development Opportunities (CDO)	**Overview tool** *(Rich client)* **TENTube** *(Web client)* (allows to visualize videos related to the competences and to navigate / explore the Network represented by the users, the videos, the related tags and the connections among them via the embedded Network Visualization and Navigation Tool, NVNT)	*Web clients after May 2008*
ePortfolio	Compile overview of achieved competences and select relevant ones for presentation: Manage presentations, View competence, Create a presentation, Export a presentation, Modify a presentation		*After May 2008*
Competence assessment	Assess a set of competences for a person. The main steps :self-assessment, evidence assessment, additional tests, assessment conversation and result (achieved competence levels)		*After May 2008*
Matching competences on job profiles	Lifelong learners will use the system to explore job opportunities and to find out which competences they need to acquire to keep qualified for their current position or to be eligible for a new position		*After May 2008*
Social Help	*Provision of learner support services*		*After May 2008*

Table 3. TENCompetence terms

Terms	Description
Community	A domain representing a certain profession. Users can collaborate within the context of a certain community. As such, each entity exists in the context of exactly one Community. Synonym for Learning Network.
Competence profile	A set of Competences that define the minimum requirements for a specific function/job.
Competence	A Competence is defined as the ability (´disposition´) of an actor to act effectively and efficiently upon the events in an ecological niche (an occupation, a hobby, a market, a sport, etc.). In short: the ability to perform effectively in a situation.
Competence development plan	A Competence Development Plan (CDP; synonyms: route, learning path, curriculum, programme) is an ordered set of activities and units of learning that have to be (or are) followed to attain a certain Competence.

Appendix 2: Plan for developments of evaluation instruments

Analysis of contents of the pilot's learning environment:
Base further structuring of the questions (if needed) upon analysis of the existing Digital Cinema Pilot and ICT Training pilot

Log file analysis
At least log files of the PCM server, other possibilities under exploration

Semi-structured interviews
Base further structuring of the questions (if needed) upon short interviews with pilot implementers

Post-test questionnaires
This can be a subset of the questionnaires used in Cycle 1, based upon the tools that are used in individual pilots and supplemented by questions on the new tools. The current questions on the tools contain the following questions:

- reasons for not using it
- what did you use it for
- how often / much did you use it
- did you use the different modalities of the tool
- appreciation of specific PCM characteristics of the tool
- estimated effect of use of the tool
- which would you prefer: PCM or standard tool
- overall rating of the tool
- use of other means for same goal

Table 4 illustrates the matching of the research questions to the questions from the questionnaires. The proposal is to leave all other questions in the questionnaire, i.e. the questions on the teacher/coach, time spent, technical problems, competence development, appreciation of learning route, learning resources, own control over learning, appreciation of collaboration.

Table 4. Matching of the research questions to the questions from the questionnaires

How do learners use:	Questions from questionnaires
• The competences, competence development plans, actions and resources?	
• the support for social interactions related to competence development?	
Subquestions with each of these questions:	
• Which tools do they use, how often and what for?	• reasons for not using it • what did you use it for • how often / much did you use it • did you use the different modalities of the tool • use of other means for same goal
• To what extent does the way in which learners use these tools match the intention of the provider?	This question can be answered by comparing the answers of the learners on their use to the answers of the providers
• How do learners evaluate the usefulness of the tools?	• overall rating of the tool • appreciation of specific PCM characteristics of the tool • estimated effect of use of the tool • which would you prefer: PCM or standard tool

Appendix 3: Use scenarios for Water Management: FMM pilot

USE SCENARIO 1: Re-define Topic Course in Competence profile based System		
ASSOCIATED USAGE PROFILE: **Create Competence profiles and simple courses**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM**
BRIEF DESCRIPTION / CONTEXT	-	For the support of our long-life learning development plans (for alumni) an infrastructure would be suitable to offer a variety of attractive learning services, including knowledge source sharing, refresh courses, self assessment tests, multi-level competence based learning offerings, etc. At first experience has to be developed with re-defining topic driven courses into competence based learning offerings: competence profile, competences, actions and resources.
AIM:	-	To re-define a 3 month on-line course on FMM into a competence profile, including competences, actions, resources, etc. This structure may in the future replace the (formal and informal) learning offerings.
ACTORS:	-	**Expert**, **teacher**, **competence manager**
FLOW OF EVENTS:	-	• Analyse course structure, topics • Define competence profile • Define competences • Define actions • Define resources
ALTERNATIVE FLOWS:	-	-
SPECIAL REQUIREMENTS:	-	PCM available, up and running
FURTHER COMMENTS:	-	

USE SCENARIO 2: Individual Online E-Learning Course on FMM (1)		
ASSOCIATED USAGE PROFILE: **Follow Course, (in the future also: Matching competences on job profiles)**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM, PDP**
BRIEF DESCRIPTION / CONTEXT	UNESCO-IHE enables external water professionals to improve their competences in flood modelling. It offers a 3 month self study on-line-e-learning course (with certificate). The current LMS offers access to course material, discussion forum, a chat room and 'ask the teacher' functionality and a FAQ on practical issues (e.g. my video won't play, what could be wrong).	UNESCO-IHE enables external water professionals to improve their competences in flood modelling. It offers a 3 month self study on-line-e-learning course (with certificate), stimulating and extending the development of a community of flood modelling experts. The infrastructure provides at a minimum the LMS functionality.
AIM:	To follow a 3 month on-line course in the webbased LMS.	To follow a 3 month on-line course through TENC infrastructure to obtain several competences related to the profile of a flood modeller'. The overall goal of the "Flood Modelling for Management" (FMM) course is to teach water professionals that by using catchments, river basin and urban flooding models they can maximize economic and social well-being in an equitable manner without compromising the sustainability of their ecosystem.
ACTORS:	**Expert**, **teacher, learner**, **author**, **developer operator**, **competence manager**	**Expert**, **teacher**, **author**, **designer**, **developer**, **operator**, **competence manager**
FLOW OF EVENTS:	Access to the web, Selection of pre-defined competence profile, Test the pre-requisites level, Take the course, Test the achieved level, Return to take another competence for the course	See left column. During the course group discussions and mutual support/knowledge exchange activities should be possible.
ALTERNATIVE FLOWS:	There is no alternative flow for this scenario	See left column.
SPECIAL REQUIREMENTS:	Bachelor level in Civil Engineering, or Computer Science with Experience in water related activities.	See left column.
FURTHER COMMENTS:	• Current users get – after registration – a username and password to access the LMS.	• To protect course material, the course will be run in a 'closed community'. Community Admin grants access for registered users. • It is uncertain what minimum internet bandwidth is needed. • Users will remain members of the Flood Modelling community. The achieved competences from each user are visible in the community.

USE SCENARIO 3: Personal Development in the area of flood modelling		
ASSOCIATED USAGE PROFILE: **Personal Development plan (PDP), Follow Course,**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM, PDP**
BRIEF DESCRIPTION / CONTEXT	-	Participants will use the PDP for working with their Personal Competence Development Plan, which means creating the plan, following it, and reflecting on the progress.
AIM:	-	To develop and share a learning path to achieve the desired competence profile.
ACTORS:	-	**learner**, **expert**, **teacher**, **mentor**, **researcher**, **author**, **designer**, **operator**, **competence manager**
FLOW OF EVENTS:	-	Create and adapt a PDP from use scenario 1 and Use scenario 2, Follow a PDP, Test cases, Discussion with coach, Reflection on progress, Publish plan and explain obtained results, Collaborate with others, Coach others
ALTERNATIVE FLOWS:	-	
SPECIAL REQUIREMENTS:	-	• Bachelor level in Civil Engineering, or Computer Science with Experience in water related activities • UNESCO-IHE short course alumnus
FURTHER COMMENTS:	-	

USE SCENARIO 4: Sharing Resources with relevant peers in the network - **(OPTIONAL)**		
ASSOCIATED USAGE PROFILE: **Knowledge management**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: LearnWeb2**
BRIEF DESCRIPTION / CONTEXT	-	A student using the FMM course needs to develop his/her competence in the area of communication, by writing an essay. For this purpose a set of resources is needed. These resources can be created using the Knowledge management tools provided by TENC project, but it is not compulsory
AIM:	-	Create a repository of resources and share them with others
ACTORS:	-	**learner**
FLOW OF EVENTS:	-	Search resources, Save resources, Share resources, Comment on quality
ALTERNATIVE FLOWS:	-	Search resources, Ask peers, Save resources, Comment on quality
SPECIAL REQUIREMENTS:	-	• UNESCO-IHE short course Alumni • Water professional in Nile Basin
FURTHER COMMENTS:	-	-

Appendix 4: Use scenarios for Agora pilot

USE SCENARIO1: Define the competence opportunities that will be offered		
ASSOCIATED USAGE PROFILE: **Create Competence profiles and simple courses**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM**
BRIEF DESCRIPTION / CONTEXT	-	La Verneda School wants to offer competence development opportunities beyond the non-formal synchronous courses it is already providing its lifelong learners.
AIM:	-	To define the competence profiles and competences that will be available to La Verneda participants
ACTORS:	-	**competence providers, expert**
FLOW OF EVENTS:	-	• Create community • Define competence profile • Define competences • Define actions • Define resources
ALTERNATIVE FLOWS:	-	The definition of resources could be done also with the help of LearnWeb 2.0
SPECIAL REQUIREMENTS:	-	PCM linked somehow to LearnWeb 2.0. PCM server available and running at the Sofía TENCompetence server
FURTHER COMMENTS:	"Ideal" formulations might become clearer once the use case is actually carried out.	

USE SCENARIO 2: Provide guided courses when necessary		
ASSOCIATED USAGE PROFILE: <**Select from the list: Follow Course, Create Course, Personal Development plan, Share Knowledge, Overview, Competence Asssement, ePortfolio, Social help, Matching competences on job profiles, Other! (E.g., Manage PCM, provide support… Please specify)**>		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: ReCourse**
BRIEF DESCRIPTION / CONTEXT	-	Depending on the competence, the associated competence development plan may need to include guided courses to participants so that they follow them step by step and do not get lost.
AIM:	-	To create IMS LD Units of Learning that provides structured courses.
ACTORS:	-	**Content developer (learning designer)**
FLOW OF EVENTS:	-	• Open the ReCourse editor. • Create a local folder and saves her empty UOL there • Create and imports the resources she needs. • Create the roles, activities and environments which make up UOL. • Launch the "tests and questionnaires" editor and creates a simple test, which she includes as a resource in an environment • Add a forum and a chat to an environment in her UOL. • Save her UOL and closes the ReCourse application. • Add a description of the course to the list of available courses on La Verneda website • Log on to the PCM, and adds a link to the course as part of a competence development plan for competence profile • For safety, also save the UOL onto a repository, following a link provided in her copy of ReCourse
ALTERNATIVE FLOWS:	-	-
SPECIAL REQUIREMENTS:	-	QTI plug-in integrated in ReCourse. ReCourse should be install in the designers' machines
FURTHER COMMENTS:	"Ideal" formulations might become clearer once the use case is actually carried out.	-

USE SCENARIO 3: Following structured courses		
ASSOCIATED USAGE PROFILE: **Follow LD Course**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: SLeD**
BRIEF DESCRIPTION / CONTEXT	-	Depending on the type of competences of interested, guidance in the form of courses may be needed.
AIM:	-	To follow a structured course to develop (part of) a specific competence
ACTORS:	-	**Learner**
FLOW OF EVENTS:	• access SLeD though the GUI container or the PDP tool • **not "log-in" button needed, direct access though the PDP or the GUI container (where the user has been already authenticated)** • access to the course and are led through the activities according their roles and the flow defined in the UOL. • the self assessment test and the forum and chat services made available as required • **when finished the Unit of Learning, the action is automatically marked as completed in the PDP**	• access SLeD though the GUI container or the PDP tool • click a "log in" button on the course front page • are given access to the course and are led through the activities according their roles and the flow defined in the UOL. • the self assessment test and the forum and chat services are made available as required • when finished the Unit of Learning, log on to the PDP and mark the action (associated to the course) as being completed
ALTERNATIVE FLOWS:	-	
SPECIAL REQUIREMENTS:	-	newAPIS integrated in SLeD available and running at the Sofía TENCompetence server
FURTHER COMMENTS:	More details of the ideal formulations might become clearer once the use case is actually carried out.	Not clear the performance possibilities of the SLeD player.

USE SCENARIO 4: Select competences, competence development plans and follow simple actions		
ASSOCIATED USAGE PROFILE: **Personal Development plan, follow simple courses**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PDP**
BRIEF DESCRIPTION / CONTEXT	-	Most learners participating in the forum have already some knowledge on the competences offered in the pilot because they may have followed already related courses in La Verneda. They decide to use TENCompetence infrastructure to enforce specific competences. (See scenarios in section 2.2.2)
AIM:	-	To select competences of interest and the development plan.
ACTORS:		**learner**
FLOW OF EVENTS:	See comments in the expected feasible formulation.	▪ (install the PDP tool, until Web version is available) ▪ Open and log-in PDP tool ▪ Select learning goal ▪ Select competence development plan (from several available) ▪ Modify the development plan ▪ Select action within the development plan ▪ Perform action (simple course, otherwise see alternative flows) ▪ Mark action as completed ▪ Blog results (optional)
ALTERNATIVE FLOWS:		▪ select LD course (go to use scenario 3)
SPECIAL REQUIREMENTS:		PDP supporting the flow of events.
FURTHER COMMENTS:	"Ideal" formulations might become clearer once the use case is actually carried out.	PDP (client) should be installed in learners' machines.

USE SCENARIO 5: Sharing resources		
ASSOCIATED USAGE PROFILE: **Share Knowledge**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: LearnWeb 2.0**
BRIEF DESCRIPTION / CONTEXT	-	When developing the competences targeted in this pilot, learners may create videos or images as part of activities, assessments, etc. (see scenarios in section 2.2.2)
AIM:	-	To share artefacts created when developing the competences as resources illustrating specific knowledge
ACTORS:	-	**learner**, **expert**
FLOW OF EVENTS:	-	• access LearnWeb2 though the GUI container (or the PDP tool) • log-in • upload the artefact to the appropriate Web2.0 tool to which LearnWeb provides transparent access (e.g., YouTube, Flickr) • Rate the resource • Comment the resource • Provide some metadata
ALTERNATIVE FLOWS:	-	
SPECIAL REQUIREMENTS:	-	LearnWeb 2.0 available and running at the Sofía TENCompetence server
FURTHER COMMENTS:	"Ideal" formulations might become clearer once the use case is actually carried out	

USE SCENARIO 6: Discover competence development opportunities		
ASSOCIATED USAGE PROFILE: **Overview**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: Overview**
BRIEF DESCRIPTION / CONTEXT	-	Learners may be interested in understand the competences in which the colleagues are working on, so that they can discover new competence opportunities.
AIM:	-	To discover competences of interest.
ACTORS:	-	**learner**
FLOW OF EVENTS:	-	• Explore the network of participants • Understand competence opportunities
ALTERNATIVE FLOWS:	-	
SPECIAL REQUIREMENTS:	-	Overview tool available and running at the Sofía TENCompetence server
FURTHER COMMENTS:	"Ideal" formulations might become clearer once the use case is actually carried out	

Appendix 5: Use scenarios for ICT Teacher Training pilot

USE SCENARIO 1: Create new community, competence profiles, competence development programs and knowledge resources		
ASSOCIATED USAGE PROFILE: **Create Competence profiles and simple courses**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM**
BRIEF DESCRIPTION / CONTEXT	-	Teachers are familiar with the I*Teach methodology. They need to understand and be trained how to use the TENC infrastructure (PCM tool) in order to implement the I*Teach scenarios and tasks using PCM, and how to develop various individual personal development plans for their learners, in order to teach them how to acquire the needed competences.
AIM:	-	Each teacher is able to use PCM in order to develop all the needed personal development plans for the chosen community and competence profile.
ACTORS:	-	**I*Teach expert**, **teacher**, **PCM mentor**
FLOW OF EVENTS:	-	• Analyse community problems • Define competence / competence profile • Define competence development plan • Define actions • Define resources
ALTERNATIVE FLOWS:	-	Usually the flow is either top-down or bottom-up
SPECIAL REQUIREMENTS:	-	Preliminary knowledge of I*Teach methodology, PCM available, Both I*Teach experts and PCM mentors available
FURTHER COMMENTS:	-	

USE SCENARIO 2: Individual Online E-Learning Course on I*Teach methodology		
ASSOCIATED USAGE PROFILE: **Follow Course, (in the future also: Matching competences on job profiles)**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM, PDP**
BRIEF DESCRIPTION / CONTEXT		During the first Cycle pilots, new course was developed and implemented inside PCM: how teachers can use the I*Teach methodology for training ICT-enhanced skills. There are already number of teachers trained how to use this methodology, both using standard face-to-face training workshops, as well as using PCM and other tools like Moodle. Now teachers trained need to apply the methodology in their teaching, using PCM.
AIM:		To help all teachers trained to use the I*Teach methodology for applying it in their normal teaching.
ACTORS:		**I*Teach expert**, **teacher**, **PCM mentor**
FLOW OF EVENTS:		There is no fixed flow of events. Teachers will use the PCM to refresh themselves on a certain I*Teach methodology topic, to join relevant communities, to find useful communities, plans and resources, to communicate with other members of these communities
ALTERNATIVE FLOWS:		Many – there is no fixed flow.
SPECIAL REQUIREMENTS:		Teachers are familiar with I*Teach methodology and want to apply it in their teaching
FURTHER COMMENTS:		

USE SCENARIO 3: Personal Development in a chosen area		
ASSOCIATED USAGE PROFILE: **Personal Development plan (PDP), Follow Course**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM, PDP**
BRIEF DESCRIPTION / CONTEXT	-	Teachers have prepared courses or learning plans for chosen communities and competence profiles. Learners from these communities will use the PCM/PDP for mastering the chosen competence profiles, which means choosing or creating their personal development plan, following it, and reflecting on the progress. They also can share resources and communicate with other peers and teachers to solve their own problems.
AIM:	-	To develop and share competence development plan to achieve the desired competence profile.
ACTORS:	-	**learner**, **teacher**
FLOW OF EVENTS:	-	Create and adapt a PDP from use scenario 1 and Use scenario 2, Follow a PDP, Test cases, Discussion with coach, Reflection on progress, Publish plan and explain obtained results, Collaborate with others, Coach others
ALTERNATIVE FLOWS:	-	Depends on the teacher.
SPECIAL REQUIREMENTS:	-	PCM / PDP available for learners, teachers willing to provide all the needed training materials inside PCM.
FURTHER COMMENTS:	-	

Appendix 6: Use scenarios for Special Education pilot

USE SCENARIO 1: Individual Online E-Learning Course SEB		
ASSOCIATED USAGE PROFILE: **Follow Course, (in the future also: Matching competences on job profiles)**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM, PDP**
BRIEF DESCRIPTION / CONTEXT		During the SEB project, new course was developed and put into PCM. The goal of this course is to teach teachers how they can teach people with various special needs (deaf-blind, visually impaired, etc.). Teachers are studying this course using two 10-days face-to-face sessions, and several months between these sessions they are staying and self-learning from home.
AIM:		The main goal is to provide the teachers with online course materials and resources, which they will use either during the face-to-face sessions, but mainly between them, when they should stay at home and learn by themselves.
ACTORS:		**SEB expert**, **teacher**, **PCM mentor**
FLOW OF EVENTS:		Access to the SEB website, Selection of pre-defined competence profile, Selection of the personal development plan, Selection of the learning activities Test the pre-requisites level, perform the chosen learning activity, Test the achieved level, Return to take another learning activity until complete the competence development plan. During the training group discussions, peer-to-peer and peer-to-teacher communications and knowledge resource exchange activities should be possible.
ALTERNATIVE FLOWS:		Depending on the teacher.
SPECIAL REQUIREMENTS:		PCM / PDP available for both teachers and learners.
FURTHER COMMENTS:		

USE SCENARIO 2: Creating personal development plans for predefined competence profiles		
ASSOCIATED USAGE PROFILE: **Create Competence profiles and simple courses**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM**
BRIEF DESCRIPTION / CONTEXT	-	During their learning, teachers need to prepare specific competence development plans in well chosen in advance learning profile. This will serve as a course project and will be graded.
AIM:	-	To develop and share competence development plan for specific competence profile.
ACTORS:	-	**teacher (learner)**, SEB **expert**, **PCM mentor**
FLOW OF EVENTS:	-	For the specific competence profile: • Define competence development plan • Define actions • Define resources
ALTERNATIVE FLOWS:	-	Usually the flow is either top-down or bottom-up
SPECIAL REQUIREMENTS:	-	Preliminary knowledge of SEB course curriculum, PCM available, Both SEB experts and PCM mentors available
FURTHER COMMENTS:	-	

Appendix 7: Use scenarios for Digital Cinema pilot

USE SCENARIO 1: Structure the competences and the actions needed to reach them		
ASSOCIATED USAGE PROFILE: **Create Competence profiles and simple courses**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PCM**
BRIEF DESCRIPTION / CONTEXT	-	Pilot implementers need to set up the community, competence profiles and simple courses that will enable competence development around Brainstorm software and NINOS tools.
AIM:	-	To create a community, competence profiles, competences and their associated actions (when they are not IMS LD UoLs)
ACTORS:	-	**Expert**, **competence and content provider**
FLOW OF EVENTS:	-	• Create community • Define competence profile • Define competences • Define actions • Define resources
ALTERNATIVE FLOWS:	-	The definition of resources could be done also with the help of LearnWeb 2.0
SPECIAL REQUIREMENTS:	-	PCM linked somehow to LearnWeb 2.0. PCM server available and running at the Sofía TENCompetence server
FURTHER COMMENTS:	"Ideal" formulations might become clearer once the use case is actually carried out.	

USE SCENARIO 2: Enrich IMS LD Units of Learning		
ASSOCIATED USAGE PROFILE: **Create LD Course**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: ReCourse**
BRIEF DESCRIPTION / CONTEXT	-	The preliminary version of Digital Cinema Cycle 1 pilot included the use of the IMS LD runtime system SLeD. However, at that time it was not possible to include collaboration tools such as a forum embedded in the learning process. It had to be implemented as a separated forum.
AIM:	-	To offer Units of Learning with more functionality than those offered in Cycle 1 (preliminary version of the pilot). This functionality includes embedding forums in the learning design and QTI test items.
ACTORS:	-	**Content developer (learning designer)**
FLOW OF EVENTS:		• Reuse the UoLs of Cycle 1 by opening them in ReCourse • Enrich the UoL with widgets and QTI items • Create the new package so that it can be played by SLeD.
ALTERNATIVE FLOWS:		
SPECIAL REQUIREMENTS:		QTI plug-in integrated in ReCourse. ReCourse should be install in the designers' machines
FURTHER COMMENTS:	"Ideal" formulations might become clearer once the use case is actually carried out.	

USE SCENARIO 3: Guided development of Brainstorm competences		
ASSOCIATED USAGE PROFILE: **Follow LD Course**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: SLeD**
BRIEF DESCRIPTION / CONTEXT	-	The preliminary version of Digital Cinema Cycle 1 pilot included the use of the IMS LD runtime system SLeD. However, at that time it was not possible to include collaboration tools such as a forum embedded in the learning process. It had to be implemented as a separated forum.
AIM:	-	To follow a structured course to develop (part of) a specific competence
ACTORS:	-	**Learner**
FLOW OF EVENTS:	• access SLeD though the GUI container or the PDP tool • **not "log-in" button needed, direct access though the PDP or the GUI container (where the user has been already authenticated)** • access to the course and are led through the activities according their roles and the flow defined in the UOL. • the self assessment test and the forum and chat services made available as required • **when finished the Unit of Learning, the action is automatically marked as completed in the PDP**	• access SLeD though the GUI container or the PDP tool • click a "log in" button on the course front page • are given access to the course and are led through the activities according their roles and the flow defined in the UOL. • the self assessment test and the forum and chat services are made available as required • when finished the Unit of Learning, log on to the PDP and mark the action (associated to the course) as being completed
ALTERNATIVE FLOWS:		
SPECIAL REQUIREMENTS:		newAPIS integrated in SLeD available and running at the Sofía TENCompetence server
FURTHER COMMENTS:	More details of the ideal formulations might become clearer once the use case is actually carried out.	(See ideal formulation) Not clear the performance possibilities of the SLeD player.

USE SCENARIO 4: Select competences, competence development plans and follow simple actions		
ASSOCIATED USAGE PROFILE: **Personal Development plan, follow simple courses**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: PDP**
BRIEF DESCRIPTION / CONTEXT		Busy professional interested in developing competences around Digital Cinema and 3D animation may have advance abilities in the area. Therefore they are expected to be quite confident when selecting the specific competences and associated development plan that they would like to follow.
AIM:		To select competences of interest and the development plan. Select LD courses
ACTORS:	**learner**	**learner**
FLOW OF EVENTS:	See comments in the expected feasible formulation.	• (install the PDP tool, until Web version is available) • Open and log-in PDP tool • Select learning goal • Select competence development plan (from several available) • Modify the development plan • Select action within the development plan • Perform action (simple course, otherwise see alternative flows) • Mark action as completed • Blog results (optional)
ALTERNATIVE FLOWS:		• select LD course (go to use scenario 3)
SPECIAL REQUIREMENTS:		PDP supporting the flow of events.
FURTHER COMMENTS:	"Ideal" formulations might become clearer once the use case is actually carried out.	PDP (client) should be installed in learners' machines. With the web client version it would be easier to lure into new users.

USE SCENARIO 5: Sharing videos (and images) created by learners using NINOS or Brainstorm		
ASSOCIATED USAGE PROFILE: **Share Knowledge**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: TENTube or LearnWeb 2.0**
BRIEF DESCRIPTION / CONTEXT	-	When developing the competences targeted in this pilot, learners may create videos or images as part of activities, assessments, etc. (e.g., http://es.youtube.com/watch?v=AsTREEFP8ZY&eurl=http://www.salero.info/en/showcase/facial_animation.html)
AIM:	-	To share artefacts created when developing the competences as resources illustrating specific knowledge
ACTORS:	-	**learner**, **expert**
FLOW OF EVENTS:	-	• access LearnWeb2 though the GUI container (or the PDP tool) • log-in • upload the artefact to the appropriate Web2.0 tool to which LearnWeb provides transparent access (e.g., YouTube, Flickr) • Rate the resource • Comment the resource • Provide some metadata
ALTERNATIVE FLOWS:		
SPECIAL REQUIREMENTS:		LearnWeb 2.0 available and running at the Sofía TENCompetence server
FURTHER COMMENTS:		

USE SCENARIO 6: Finding and watching videos (and images) created by others using NINOS or Brainstorm		
ASSOCIATED USAGE PROFILE: **Share Knowledge**		
	IDEAL FORMULATION OF THE **REAL WORLD** USE SCENARIO (not considering the functionality available for the planned Cycle 2 pilot implementation)	FEASIBLE FORMULATION OF THE REAL WORLD USE SCENARIO (according to the functionality available for the planned **Cycle 2** implementation) **Tool: TENTube or LearnWeb 2.0**
BRIEF DESCRIPTION / CONTEXT	-	When developing the competences targeted in this pilot, learners may want to watch videos (or images) created by others with the tools being trained.
AIM:	-	To find and watch resources created by others when developing the competences (the resources illustrate specific knowledge related to a competence)
ACTORS:	-	**learner**, **expert**
FLOW OF EVENTS:		• access LearnWeb2 though the GUI container (or the PDP tool) • log-in • search the resource (by keyword) • access the resource (LearnWeb provides transparent access to resources stored in web2.0 tools such as YouTube, Flickr) • Rate the resource • Comment the resource
ALTERNATIVE FLOWS:	• Search resources by competences	
SPECIAL REQUIREMENTS:		LearnWeb 2.0 available and running at the Sofía TENCompetence server
FURTHER COMMENTS:	More details of the ideal formulations might become clearer once the use case is actually carried out.	